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The Man Young at Fifty

SELF-REGULATION.

Personal Obligations in Keeping One's Self in Order, Especially During Late Prime; Before Then Too Few Realize How Important It is to Achieve Conscious Control.

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The call to become one's best is now mandatory. The instinct to preserve readiness or fitness, for meeting any and every call so imperative in the dawning of the race fades readily upon neglect, through apathy due to overmuch security and ease. During the drive and strain of universal war and our own personal responsibilities, no sane citizen can disregard demands made on him for economic self-discipline.

This impulse or motive toward self-regulation is the expression of primal tropisms inciting from far up the ancestral origins.

These prehistoric, inherent promptings give shape not only to the whole realm of behavior but in particular—consonant with our present theme—along sensori-motor pathways or levels, furnishing guides for present-day training.

The trend (tropism) toward self-perfection is a part of our most sacred heritage, evolving through unconscious avenues, reaching back to the source of all good and all power.

To the underlying sense of duty is added, during and after war time stress, the incitement of world-wide exigency; thus the urge to keep one's-self capable for service has become a sacred obligation.

Every industrial unit should spare no pains to become just as fit as every military unit; at least as fit as lies in each one to become.

We call these influences phylogenetic because they arise in ties of blood by descent through modifications from pre-existing ancestors.

These again are modified by circumstances, struggles, adversities, necessities, teachings, beliefs, etc., with always a thin line of consistency till there are formed physical as well as mental complexes which so merge into the fountains of behavior as to form distinguishing tastes, racial habits, convictions and the like, producing variations from the original which are not really differences. Some impulses, however, become submerged and others exaggerated, until, while methods may differ, alterations in trends do not occur.

I.

Don't form the idea I am obtruding a dull scientific subject. Just as soon as you get a line on my theme you will see it is the most absorbing one on earth—your precious self—what you are and are capable of making of your powers by personal effort, by siezing opportunities for enhancing your best and highest interests through self-regulation of conduct, adapting your aptitudes to succeed in "that sphere of life unto which it may have pleased God to call you."

In this communication I shall deal only (or chiefly) with physical self-regulation, passing by the psychic or ethical till another occasion.

Among the points I may refer to, or very briefly discuss, are regulations, of: habits; the senses; vision; hearing, the genital organs including the sex impulse; respiration, circulation, teeth, digestion, sleep, the skin, clothing; housing or environment and, with some particularity, activities and rest, including work, play, body training to build up or tone down; occupations, amusements, pastimes and finally some considerations on the pursuit of the fine arts; also the mind as control agent of body functions.

Among the questions anyone interested in achieving conscious control through self-regulation should put to oneself are the following, some or most of which will be touched upon in the later text: Where and when shall we begin self-regulation? What are the rewards?

How culpable is the one who omits self-discipline?

What degrees and kinds of perfection can each one achieve?

In what particular is self-regulation necessary?

How shall we set about making up our deficit of wasted time and opportunities?

II.

At any age self-regulation is needed by the organism as a whole (including body and mind or spirit); in early life for preparedness, in the prime of life for preservation of integrity, in later years to retard slow decline and in order to survive yet a little longer free from decrepitudes.

Rewards of self-regulation are so rich and so satisfying, so sustaining through periods and episodes of good and evil report, that they must seem worth while to any-

one capable of taking thought for the morrow, or of observing critically the sliding scales shown in any human experience.

Whosoever omits to form and maintain habits of conscious control, of vigilance in keeping the lamps of life trimmed and burning, must suffer varied and grievous retrogression. These slippings back may occur in one or other particular or local area, but the result is inevitable decadence.

Whosoever having possession of their wits is either so pitiably weak willed or unable to realize the obligation of self-regulation is to be commiserated and left to their fate, to "dree their own weird."

Whosoever being able is so apathetic as to permit their God-given capabilities to rust out, or rot out, or merely remain at a dead point, deserves little consideration.

However, the duty of sane neighbors is obvious—we are here as elsewhere our brother's keeper, and it is our obligation to do our uttermost to persuade or even coerce the apathetic one to get busy in his own behalf.

As to the degrees and kinds of perfectability well within the powers of each, these are so large, so varied and so splendid it becomes a joy to those working along similar aims with myself to be given opportunity to personally confer with and direct anyone of open-minded willingness. The directions should include the mental, physical and moral, and may need the coöperation of several experts or groups of experts.

The particular domain of self-regulation here to be elaborated is the physical, and from the viewpoint of what the late S. Weir Mitchell was accustomed to describe as "the higher planes of growth and development," that super interaction, correlation, integration of body and spirit whereby the products become "men like unto gods walking."

It may be here remarked this has been attempted often enough, but rarely carried to its ful or legitimate conclusions. I cherish the hope that now that the war is over for the time some of those choice experts in human conservation who survive and see their duty, may take up the quest with increasing thoroughness.

III.

How shall we set about now and here—the making up for wasted opportunities? This essay presents some hints in that direction.

We win the right to exist through our acts, conscious or unconscious, making for self-control. Our obligations are to be ceaselessly vigilant and faithful in performance. The continued integrity as well as quality of our equipment depends upon how we discharge our duty. At all times is self-regulation necessary. Habitual and expert determination and action in order to achieve facility, is the result of self-training in conscious control. We acquire thereby, a series of working habits (automatics) which can be relied upon independent of our conscious volition. To maintain maximum proficiencies these habitudes must be varied constantly.

The whole of earned success rests on self-regulation. Accidental successes may come, better or worse use being made of opportunities and by practicing economies of our personal endowments. In the final accounting, however, you get what you wish and determine and pursue; you earn out of yourself by your own methods. Abundant opportunities, it is claimed, arise in the life of every one quite as good as should be expected. This cannot be denied for the reason it can never be known whether openings one did have were, or were not, the right avenues to that kind of advance of which he or she was capable.

We make or mar our destinies by the advantage we take of our openings; as we seize and hold and elaborate such chances as come our way. The final issue, in any desirable form of success, rests on what we do at critical turning points, or what we have become through our use of original qualities and especially through the early training supplied by our parents and teachers.

To blame one's failures on heredity, or on antecedent education, is the act of a whimpering coward, just as the poor workman blames his tools, damns his material and wriggles from under the load of blunders he has made for himself. Undoubtedly a large measure of responsibility rests, and should rest, upon our parents and our early environment. The utmost harm our forebears can have done us lies in their omissions to supply us with sound constitutional material, and later to round us out by rational training, and to furnish a symmetry, a balance to our forces—little more. We "are as Nature or God Almighty made us" to begin with, and that is usually good enough. Our parents can aid much through wise nurture. It is up to each one to do the real work of self-making. Let us be sure we realize our responsibilities to ourselves early enough; that we seize our privileges and discharge our obligations.

Appreciation of our own responsibilities is one of the most important factors in growth and development of personality; a clarified sense of duty to our best selves. Another item is to learn what our special capabilities, proclivities and defects are, and also what they are not; the direction into which they should be encouraged or moulded, or forced; the habits we should form and also the perils of lax, inexact or erroneous, or worst of all of shiftless habits.

Whether the outside aid or teaching we originally received was good or bad, of the best or of the worst, we must in the final issue, depend solely upon ourselves.

How we develop, how we shall specialize, whether we become proficient or not in desirable directions and degrees, lies in our own hands. In short, the foundation of our personality, the kind and strength of our purpose rests, in the main, upon our personal coöperation and our contribution to the result. The process of the making (or the marring) is one of self-regulation.

IV.

The subject which occupies us here and now is the individual who has reached adulthood, the apex of powers good or bad, and how he should take account of whatsoever resources he finds himself possessed of and to make the most of what he is and has made of himself up to date.

Having reached this point we can proceed to discuss what remains thereafter to do; how much and what can yet be done; and above all, how we shall set about doing it. Fortunately experience has shown that the powers and possibilities in each and every one are tremendous, beyond all expectation or computation, almost beyond belief. It becomes always a question of how wisely and persistently we go about bringing these latent, unused powers (potentialities) into the field of action, also how we perfect and apply them.

The principles of self-regulation begin with learning so far as possible what our inherent potentialities are which lie dormant in each, and deserve to be made available, set in order, marshalled and concentrated to do the right acts. It is true some lines of development both mental and physical which were ours in early plastic days, during the flood tide of prodigal energies (adolescent prepotencies), have now become impaired; many of them are irretrievably damaged or lost. None the less, more than enough remains to suffice for all prac-

tical purposes; certainly more than anyone can, at (say) middle age, make the most of, or even put to use.

Hence we shall try to indicate a few possibilities and directions of *Applied Self-Regulation.*

V.

Man in his earlier stages of development was of necessity as active, rather more active, than the creatures about him. To-day he has become so inactive as to be a mere sedentary biped. How did this enormous growth of sedentary life come about?

During the middle ages and up to the 18th century, only two classes of mankind existed: the wealthy or powerful, and the poor or laboring classes. With the growth of wealth through industries, new lands, hoards of treasure found among conquered peoples, and other easily acquired forms of affluence, the idea of manual labor became associated with acts of inferior groups of beings, of men who belonged on the low plane where they were kept by accidental circumstances or by fear. This idea, this subordinate position, was accepted unchallenged by the working classes and still obtains in feudal and paternalistic nations. Men who, like certain groups of Europeans to-day have not yet rightly developed latent mental pathways, still fit into this classification. In even so highly elaborated and specialized nations as the Germans, this fatuous obedience to constituted authority still dominates to an apparently limitless degree.

The effect of easy successes and age long inheritances upon the upper or more favored classes was to encourage habits of indolence, leading them to practice and extol the sedentary life. Social traditions, literature, art and song, all combined to create conviction, (deep complexes), compounded of years of ancestral impression, training, beliefs and habits, to the effect that men are born into one or other of the two categories, and there they shall remain if they so wish or are content to do so.

Hence the upper classes thereupon oftentimes deteriorated through lack of stimulus to effort; they became less forceful, aggressive, dynamic. To be sure they were healthy enough, due to the exercise of good taste or necessity for active pastimes, sports and occupations, such as those which a leisure class, well fed and comfortably situated would naturally select. The French aristocracy, for example, showed in the eighteenth century, remarkable longevity. Mentally brilliant, dramatic, even poetic, they became appreciative of esthetics and science, but few dynamic urgings were supplied and these only came through constant meeting and mastering of opposition, and overcoming of difficulties.

In tropical and subtropical countries the energetic white races become fundamentally weakened. In India four generations of whites are unknown. Even the natives will work only enough any one day or week to earn a supply of food, the barest needs, mere provisions and shelter, no more. While climatic conditions account for much lethargy, these deterrents to energy run parallel with sociologic retardation (inhibitions).

The associations of an inferior race capable only of crude labor, exerts a baneful effect upon the superior race. Incapacity for self-organization leads to abuse of those held in subjection, to ill-usage of underlings, oppression of laborers and the exploitation of some of the many forms of privilege.

Close associations with a despised race, unable to retaliate, leads to low morality in the dominant one. Hence it is the higher race which suffers most evil moral effects. This leads to peevishness, to quarrels, to bitternesses, to envy, hatred, sullenness and spleen, therefore to premature socialism or its equivalents.

Thus it will be plain how man has become in modern times, through radical mutations in economic methods, largely a sedentary animal. The vast majority of labor is now done in factories, mere tending to machines or other indoor routine occupations. To such a degree has this change come about there are those who argue that it is a normal phase of biologic evolution which must be accepted and conformed to; that we should order our lives in accord with fundamental transformations in social conditions.

To me this seems faulty reasoning; many pertinent facts show the conclusion is not borne out. We might, however, have been forced to accept this fatalistic view and have resigned ourselves to a new era of decline in power for energizing, have in short approached the status of mollusks, were it not for the flare up of the war spirit which swept over the world in August, 1914. This redundant energy, promptly mobilized on precisely the same old lines of part racial trends and larger part dogmatic suggestions, consistent opportunist teachings that all should put to the test of battle each and every issue, shows plainly man is essentially what he was in the stone age, a fighting savage. It is a biologic principle, not yet contravened, that racial progressiveness is conditioned upon pugnacity.

The dominant or at least most aggressive nation is the Germanc or Teutonic, and among the factors of this dominance is the uniform teaching of the populace the paramount value of those qualities which go to make for efficiency in every department of endeavor. All this is incomparable for achieving dominance, mind you, based on the highest training in modern *industrial efficiency* the crux of which is thoroughness in detail in every act and aspect of life. Also the evidence points to the fact that while primary education among that people is most carefully directed, the German is taught to pursue *self-regulation as the paramount agency* for domination and world power. Ethical considerations exert apparently no bearing on inherent or insidious trends. This is a fatal, a suicidal, omission as time will show.

This Germanic system of primary education along selected trends rests upon a secondary principle of consistent self-regulation which ceases not till the last ounce of dynamics in each one is made available, perfected, and focussed upon proficiencies.

VI.

In these United States the tendency is for practically every one who can afford it to lapse into varied degrees of sedentary or self-indulgent individualistic forms of living. This is most conspicuous among the middle aged. Hence it seems obvious that in order to bring our index of healthy personal efficiency up to a norm for sustained productivity, we should direct our attention and energies unceasingly toward saner, more economic and efficient methods of self-regulation. This duty rests especially on men and women during their middle years, who are naturally lapsing into slothful, self-indulgent habits, quite as much as on those who are younger, more spontaneously energetic.

Let me emphasize one fundamental mind-and-body-as-one (psychophysiologic) principle: Life is maintained by the action of a series of self-regulating mechanisms. These actions proceed without our conscious aid provided all the conditions of life are and remain ideal.

Since the exigencies of civilized existence become increasingly exacting, making for the benefit of mankind

as a whole, the individual contributor to this complex series of procedures must suffer unless he be vigilant and defend himself against ceaseless adverse pressures.

The consequence of this pressure is shown by increase of certain perturbations (psychopathies), exhaustion diseases (psychoses and neuroses, and tissue degeneration, hypoplasias). Hence the individual must assume the obligation of conserving and above all regulating his own working powers. This can be done by taking himself frankly, sanely and firmly in hand, by personally conserving, constructing and reconstructing his resources of mind-and-body through vigilant conscious control and judicious self-regulation. Expert counsellors are here needed as nowhere else in the whole realm of endeavor.

VII.

The most outstanding weakness of the American seems to arise through a disregard for expert advice in domestic, household, family and similar sacred, intimate and fundamentally important domains. We are learning better, and swiftly reaching thereby a clear idea of what our needs are; we are moreover adapting ourselves to the new conditions made urgent and emphatic by the self searching compelled by the world war.

A whole system of philosophy, the Socratic, was based upon the aphorism that, to know oneself thoroughly was a more important personal obligation than any other. Socrates was among the first to realize the intimate correlation of the self to one's natural history and phenomena, the economi interdependence between mind and body.

You know yourself by open mindedly watching yourself, your functions, your actions and above all your impulses; by noting them you control them as they control you. You exchange so much life for so much material. You always get something for something; not something for nothing. At least you learn where you stand in the scheme of things and are compensated for many unpleasant experiences by an increased mental awareness, vision, experience, hence wisdom.

Socrates it was who most enthusiastically taught that the highest product of self-regulation was serenity, poise, equanimitas, indifference to annoyances or to joys; always ready to accept what the Gods decree and actually send. This idea of course came from the Orient. Socrates enthusiastically preached the value of sanity of body and of mind. To be sure he paid small attention to his own body depending fatalistically on automatic adjustments; assuming his mind coerced the flesh into equilibrium. This is only partly true. The only safe course is to maintain vigilant and incessant sensori motor training.

The distinguishing characteristic of his helpmate Xanthippe was that she knew herself perfectly without discussing the subject in any way or degree. Instinctive self-knowledge with her was not a fine art but a gift such as some rare souls enjoy. Too many fools claim to be in that class.

However, her demonstrations must have aided, indeed illuminated, Socrates in elaborating his system, having so perfect an example of sensori motor and psychomotor equipoise before his consciousness incessantly.

VIII.

The human being is designed for action; it is only through and by variegated normal action of the grosser structures that life is lived in its fulness and satisfactions. Inaction is mere existence and a pitiable one, fraught with perils to structure, even to survival, no matter how serenely the mind dominates the whole. For those in the zenith of life, activities may and should be full, varied and fairly well sustained for long periods.

These activities in the prime of life should be designed for economic conservation or reconstruction, and should be symmetrical. They should not be constructive in the sense of ambitious strainings for improvements in mere mental or muscular agilities. The aim should be chiefly to secure or regain varied facilities lost through neglect of earlier powers or to overcome the effects of disuse, of disrepair, of disease, of injury or neglect. In short exercises (systematic use of parts) in one's prime should be merely those capable of restoring a proportionate measure of what any one was capable of in one's earlier prime, and in maintaining an even plane of motor efficiency.

Expert guidance is required to learn and to do. One may, indeed must, have forgotten much, and one must learn how to avoid those perils of overdoing which cause disablements due to excesses and follies.

IX.

When one reaches the top of the hill and passes along the levels of comfortable middle age it will pay handsomely to take counsel with oneself now and then as to where one stands in the scheme of self-regulation. Among the queries it is wise to put up to yourself are these:

(1) Am I living to enjoy life chiefly through the senses, appetite, to merely feel rather than to know: i. e., living on a vegetative (a sensuous) plane or:

(2) Am I living to get my chief pleasures, uses, my best gratifications and justifications for existence through keeping my body parts (organisms) in prime working condition to serve its higher purposes, enlargements of view, ideation, intellectation, worth-while achievements; in short, on an ideo-motor plane? or:

(3) Am I capable of doing the work as home maker and home defender for which my make-up is designed; in short, living on a high sensori motor plane?

Somewhere back in your existence your spirit, or soul, or better self, grappled with these issues and came to decisions, started you in one or other direction under a subconscious determination. "By their fruits shall ye know them."

The effects of self-regulation may not seem so notable, yet here lies the index of earned successes for present or for future tests.

Human life as a whole may not have been markedly lengthened, but the efficiency of middle life is enormously increased. Attention deserves to be directed to this fact as well as to the causes acting in bringing it about. Justification for existence, it is plain, can be encouraged, sustained or retarded by conduct. Some men are old at forty, others are young at sixty. The reasons are due partly to inheritance of good or bad qualities, but so largely can adversities and decrepitudes be overcome, by wise self-regulation, it is amply worth while to know how and determine where you or I stand in the scale of survival attributes.

So swift are world movements in these days we become too busy ourselves making, and watching others make history, to grow old. We are eager to hold our own in the hurly burly till the surging rush of forces carry us "up and over the top"; then we must be ready to see what happens and do our best. Opportunities and results like these can only, in the last issue, be good. How long will it take for such torrential happenings to

*In my professional efforts to direct attention to the need or value of self regulation, or restoring previous powers, I ask no one to do more than I myself do (or have done), in so good a cause. My aim has always been to do the best I knew how. The measures commended are honestly chosen and formulated from full experience.

reach stable equilibrium; for the dynamic trends which in our inexorably rough cast civilization is taking moral and industrial shape, finish, elaboration?

Meanwhile is it not well worth while for each one to take counsel with onesself as to where one stands and above all learn how long and how advantageously one can hold onesself in hand to do "a man's part" in this thrilling game? Among the lessons the world war teaches is that while young men supply the push we middle aged men are needed just as much to steady, to guide, to correlate.

The country is as one unit here. Peace prattlers might well spare their breath; they would gain far more credit and results by ceasing to accuse imaginary militarists and agitate for that self-regulation of all which makes for good roads, coastwise and inland waterways, harbor defenses, interconnecting railroads and all the multitudinous economic agencies which are sadly delayed and urgently needed to guarantee that organized power which alone ensures and enobles peace.

General Scientific

THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

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PRESIDENT OF THE ILLINOIS TUBERCULOSIS ASSOCIATION AND DIRECTOR OF THE SPRINGFIELD OPEN AIR COLONY,
WILSON RUFFIN ABBOTT, M.D.,
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4—The Physical Examination in the Diagnosis of Pulmonary Tuberculosis. (Concluded.)

Auscultation.—It has been said that the early changes in breath sounds of tuberculosis often go unrecognized because the examiner lacks a clear comprehension and appreciation of the normal. That is true. An accurate and firmly fixed mental grasp of physiological breath sounds is essential and therefore must be mastered before one can differentiate between them and the pathological. This admits of no compromise. We may remark, however, parenthetically, that seldom does one find in the adult pure physiological breathing. Slight departure from the normal is not incompatible with good health nor does it indicate active disease.

The normal respiratory current flows uninterruptedly and has rather a soft, sighing tone which is heard at the end of the inspiratory act wherever the lung is functioning. The loudness and clearness varies with the location. The inspiratory tone terminates rather abruptly and retains its pitch and volume to the end. The expiratory sound is less pronounced. It lasts about one fourth as long as the inspiratory, is lower in pitch and terminates by gradually fading out. There is no accentuation in either of the respiratory phases. There is no roughness, no harshness or other adventitious sounds. One must clarify all mental fog in regard to these facts before he can hope to recognize those slight changes in pitch, duration, clearness and rhythm that mark the earliest auscultatory changes in tuberculosis. He should bear in mind that whatever increases the homogeneity of the parenchyma increases its conductivity, and *a-priori*, the clearness with which the viculant and vocal respiratory sounds are heard. In other words, whatever makes the lung structure more dense, more compact or obliterates the spongy parenchyma will add to the clearness and definiteness of the chest sounds. We cite as examples tuberculous infiltration, pneumonia, fibrosis, consolidation, pulmonary collapse, emphysema, cavity and bronchiectasis.

Weakened Respiratory Sounds.—Weakened respiratory sounds are perhaps the first auscultatory evidence indicating a probable pulmonary tuberculosis and point to some impediment in the flow of the respiratory current. Some of the more common causes are:

(1) Loss of "mural tone"; (2) Obliteration, partial or complete, of the lumen of the terminal bronchioles due to lateral compression by a surrounding infiltrated parenchyma; (3) Compression due to enlarged peri-bronchial glands; (4) Stenosis, the result of swollen epithelium of the terminal mronchioles; (5) Compression due to effusion.

We should bear in mind those whose respiratory murmur is weak because of:

(1) Faulty breathing habit; (2) Faulty transmission of sounds on account of thick chest walls (obisity); (3) Syphilitic gumma.

It is good practice unless evidence to the contrary exists, to consider weak or absent vesicular breathing, whenever found, especially over the apices, as significant of tuberculosis invasion. The ultimate decision, however, must be determined by the clinical interpretation of the case history and of subjective and objective symptoms such as temperature, pulse, cough, weariness, loss of strength and weight, malaise, etc., and possibly differential blood count with Wasserman test to eliminate syphilis.

The physical bases underlying weak respiratory murmurs can be readily understood by recalling the structure of the terminal bronchioles. They contain no cartilage rings to support them from collapse when lateral pressure is brought to bear from without, as occurs in pulmonary infiltration. The extreme smallness of their calibre also renders them particularly liable to stenosis in case of swelling, hypersecretion or deciduation of their epithelial cells. From this it may be correctly inferred that the bronchioles (capillary bronchi, terminal bronchioles) react more readily to pneumonic than bronchial irritation.

Bronchial Breathing.—Bronchial breathing is indicative either of complete or partial collapse of the vesicular walls or their obliteration. It shows that the spongy portion of the lung has either been destroyed as in cavity formation or replaced by more dense tissue. Pneumonia or consolidation collapse are examples. In this, as in weak vesicular breathing one occasionally finds chests in which bronchial breathing is not pathologic. To be indicative of disease bronchial breathing must be localized and accompanied by an impaired resonance. Particularly significant is the gradual giving away of the vesicular murmur to an increased bronchial tome. In tuberculosis it may not have the high pitch and harshness common in pneumonia. Where consolidation has occurred, however, it closely resembles the tones of pneumonia both in regard to pitch and intensity and in addition thereto has a reverberating quality.

Between the extremes of feeble or absent vesicular breathing and frank bronchial breathing are many variations among which may be mentioned harsh, glandular, cog-wheel and broncho-vesicular breathing. The significance of these variations is merely a departure from the normal physiologic breathing.

They are of no special diagnostic aid and we do not know of any way in which they can be intelligently described. To those who have heard them, no description is necessary. To others, no description is worth the effort. In the words of Latham, "They are simple perceptions of sense which no words can make plainer than they are." They can ony be learned by practice and by repeatedly listening to them. Their importance lies in their relation to the case history and the subjective symptoms.

Prolonged Expiration is indicative of impaired contractility or loss of elasticity of the lung tissue. It is always of clinical significance although not necessarily indicative of active tuberculous disease. Again that must be determined by case history and associated symptoms.

Rales.—If it is true, and it is, that the terminal bronchioles react more readily to pulmonary than bronchial irritation, and if it is true, and it is, that pulmonary tuberculosis manifests itself primarily within the parenchyma and that the bronchi become involved by extension from the lung tissue and not, as is still believed by some—in the inverse direction, i. e., bronchi to the lung—it follows logically that the first of the tubercular tissues to be involved will be those portions in most intimate contact with the lung structures, viz., the terminal bronchioles. Such is in accordance with the pathological facts. In pulmonary tuberculosis it is within these capillary bronchi and the adjacent lung tissue that we get the first signs of moisture as indicated by the crepitant and sub-crepitant rales.

Rales in tuberculosis interest us not especially because of their diagnostic value but rather because they indicate a breaking down of tissue and a possible extension of the disease. The rale is different in its significance in bronchitis. There it is due to a hypersecretion of the bronchial glands or the epethelial cells. However, we must never lose sight of the fact that both a bronchial and tuberculous process may, in fact, usually do co-exist.

One may then properly ask what, if any, are the distinguishing features of rales due to a tuberculosis rather than a bronchial process? Broadly speaking there are none. Yet we are not willing to let the subject rest here, for we know that in our own every day practice there are certain features that sway our opinion for or against a tuberculous origin. Without being held too closely to the line, we would say that tuberculous rales, generally speaking, are not coarse and bubbling nor diffused throughout the chest as so commonly occurs in bronchitis; but rather, when of tuberculous origin, they are fine crepitant or subcrepitant. They are usually (1) localized in patches; (2) do not change character or place from day to day, and (3) they are always associated with dullness.

The Crepitant Rale, or crepitation, has been described accurately as a sound resembling that produced by rolling one's hair between the thumb and finger. It has a sticky sound and is thought to be produced by the incoming aid forcing apart the coaptated vesicular walls. When it is super-imposed upon dullness or hyper-resonance, it is indicative of softening which, if continued, will give rise to the sub-crepitant and moist rale. It usually occurs during inspiration, occasionally during expiration. Crepitation is also found in pneumonia, pulmonary collapse and pulmonary edema.

The Sub-Crepitant Rale is a fine rale. We know of no words that describe it satisfactorily. We would say, however, that whereas it in no way partakes of a coarse bubbling character, one at once recognizes that it is due to moisture. It seems to us that one can receive no other impression from its sound. It is quite different in our opinion from the crackles of muscles and articulating surfaces with which some writers caution us not to confuse it.

In tuberculosis, the crepitant rale may be looked upon as indicating an involvement of the parenchyma or the lung air vesicles. The sub-crepitant rale indicates an involvement of the terminal bronchiole and marks an advance in the morbid process.

Dry rales are apt to be indicative of an old fibrous or healing lesion. We have found them. however, in the active, progressive lesion. They are common in the asthmatic, the emphysematus and the chronic senile phthisic. They are of little diagnostic or prognostic value.

Cough and Bronchitis.—Our record shows that, in spite of voluminous and enlightening literature upon the differentiation of pulmonary and bronchial infection, all too many physicians are being confused in their diagnosis and differentiation because they have failed to recognize the signs that point toward tuberculosis.

Some of these which have been repeatedly emphasized since those days, over a century now gone, when Bedham and Laennec introduced, described and differentiated between bronchial, pneumonic and phthisical affections are: (1) A dry, hacking, unproductive cough that resists ordinary sedatives and expectorants which may not be accounted for by laryngeal, pharyngeal or serious cardiac lesions; (2) Chronic bronchitis, associated with emphysema, subnormal temperature and suddenly developing loss of weight and elevation of temperature; (3) Chronic bronchitis with pleurisy; (4) Chronic bronchitis with occasional color; (5) Chronic bronchitis with night sweats and "stomach trouble."

Hemoptosis in uncomplicated bronchitis, although extremely rare, lacking strong supportive evidence to the contrary, should be looked upon as of tuberculous origin.

A foamy expectoration indicates that the inflammation involves the terminal bronchioles and the air vesicles.

Bear in mind that (a) Chronic bronchitis may be a part and a part only of pulmonary tuberculosis; (b) that 30% of all cases of chronic bronchitis have been proved to be tuberculous; (c) Cases have been reported in which the sputum was continuously negative; but, upon autopsy, the lungs showed disseminated areas of military tubercules.

Pleural Sounds.—Lastly, let us say a word in regard to pleural sounds. The healthy pleura yields no sound. Pleural sounds were first described by Laennec. He speaks of them as "up and down rubbing." It is not always true. At times they have a crackling tone, not unlike that produced in pulling apart two sheets of sticky fly paper. These sounds frequently occur with the respiratory and cardiac movements. Coughing does not remove them and respiration is frequently accompanied by pain.

Pleuritis always calls for close study. A great majority of cases will reveal evidence of tuberculosis. To the striking aphorism of Gee: "Whenever you see anemia think of tuberculosis," we would add: "Whenever you see pleurisy think of tuberculosis."

The significance of pleuro-bronchitis is obvious.

Summary.

Old as tuberculosis is, the changes which have come in our attitude toward it have come so rapidly and so recently and so radically that one is almost tempted to say that if the physicion of many years in general practice desires to deal with the disease intelligently, he will perhaps do well to dismiss from his mind most of his former notions and ideas concerning it and begin with a clean slate. Medical literature of only a few years ago, while containing much truth upon which subsequent progress was founded, is utterly unreliable as to diagnosis and treatment.

In concluding these pages which have been written as a practical guide and not as a scientific discussion, we feel justified in setting down the following conclusions with a certain degree of dogmatism, cautioning the reader, of course, that they must be accepted with that reservation which one must always make for brief and epigrammatic statements regarding any phase of the rather inexact art of medicine.

(1) In the diagnosis of relatively early tuberculosis every bit of evidence is of value. A painstaking, written case history following a definite system is as necessary as the physical examination and often of more value. It is doubtful if any clinician is capable of the accurate diagnosis of early tuberculosis on physical examination alone.

(2) Presence of bacilli in the sputum usually indicates more or less advanced disease. To await a positive sputum before making the diagnosis is intolerable.

(3) In view of the great prevalence of tuberculosis infection and tuberculous disease, the policy of trying to avoid a diagnosis of that disease is unwarranted. In common practice, erroneous positive diagnosis are far less common than erroneous negative diagnosis.

(4) If explained intelligently, the diagnosis of tuberculosis need not come as a great shock to the patient. The diagnosis should never be announced until the physician has ample time to discuss the matter fully and to allay unreasoning fears.

(5) It is absolutely criminal to withhold the diagnosis of early or moderately advanced tuberculosis. Cure depends upon a clear understanding of the truth.

(6) The x-Ray will disclose evidence of lung pathology. It will not disclose whether the patient is suffering from present tuberculosis. The x-Ray, while valuable in confirmation of findings, will never take the place of case history and physical examination.

(7) Physical findings, to be of value, must always be considered in connection with the case history and symptoms.

(8) More physicians fail through lack of system and haste than through actual lack of knowledge. At least an hour should be given to the examination of the tuberculosis suspect.

(9) Always strip the patient to the waist in making the examination and remember that the earliest signs of pulmonary disease are often found in the back.

(10) Do not hesitate to have the patient return for re-examination if deemed necessary. In the doubtful case, make a negative diagnosis only after exhausting every resource. An erroneous positive diagnosis may be unfortunate. Erroneous negative diagnoses are often fatal.

THE VALUE OF THE METHOD OF HYPNOIDIZATION IN THE DIAGNOSIS AND TREATMENT OF PSYCHOPATHIC DISORDERS.*

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II.

Many years ago I discovered a special normal, mental state, widely different from the hypnotic state. I termed the state *hypnoidal* and the method of its induction I termed *hypnoidization*. The hypnoidal state is of the utmost consequence in the study, psychognosis, and treatment of functional, phychopathic maladies.

The hypnoidal state is a state *sui generis* and is widely different from hypnosis. The hynoidal state, according to my researches on various representatives of animal life, is essentially a sleep state. Subwaking and twilight states are more appropriate terms and indicate more accurately the real nature of the hypnoidal state. *Hypnosis is an abnormal condition while the subwaking, twilight hynoidal state belongs to the normal sleep states.* In fact, according to my work, sleep is a late development in the course of evolution. *Sleep developed out of the hypnoidal state.* The hypnoidal state is the primordial sleep of all the lower representatives of animal life. The hypnoidal state is really the fundamental slep state, and may be regarded as more normal than physiological sleep states. We should not confuse the hypnoidal state with light hypnosis since the two are totally and fundamentally different in character and in nature. Light hypnosis is no more hypnoidal than syncope and coma of apoplexy and concussion are like normal physiological sleep. The hypnoidal state is essentially a primitive sleep state, a state of rest, repose and relaxation. There is nothing rigid about the method of hypnoidization. The method is quite elastic and adaptable to each person; it admits of an almost infinite variety of modification. The principal object is to observe the conditions requisite for the induction of normal and abnormal suggestibility.

I give the tables of normal and abnormal suggestibility as well as the few laws formulated by me in my work, *"The Psychology of Suggestion."*

Normal Suggestibility.	Abnormal Suggestibility.
1. Fixation of attention.	1. Fixation of attention.
2. Distraction.	2.
3. Monotony.	3. Monotony.
4. Limitation of voluntary movements.	4. Limitation of voluntary movements.
5. Limitation of the field of consciousness.	5. Limitation of the field of consciousness.
6. Inhibition.	6. Inhibition.
7. Immediate execution of the suggestion.	

"The processes" T. Brailsford Robertson writes, "which underlie and condition the various activities of the central nervous system are, primarily, *autocatalysed chemical reactions.* The canalization hypothesis of Exner can now be expressed in a much more definite and concrete form. Each incoming stimulus carves out for itself or deepens a pre-existing channel in the central nervous system, but the channel is not a trough formed by the physical displacement of particles, it is a chemical channel, a thread or trace of the autocatalyst of central nervous activities, a thread which need not necessarily be supposed to be more than a few times the diameter of 'the sphere of the molecular influence' in width.

"Supposing that the stimuli which impinge upon the central nervous system through the agency of the senses, or, indeed, through the spontaneous diffused activity of the central nervous system itself, be by some means so limited and suppressed that for all practical purposes all impulses arriving through the senses are for some time discharged along one pathway only; there will obviously be a tendency for that pathway to become deeply canalysed, while at the same time other pathways leading from the sense-organs will be becoming progressively fainter and fainter. The subsequent tendencies will be, until new pathways

*Lecture delivered before the County Medical Society, San Diego, Calif., April, 1919.

are forcibly channelled out, for the activities of the nervous system (field of consciousness) to become limited and narrowed to this single channel.

"We are led to inquire whether the circumstances attending the formation of these *idées fixes* correspond in any way with the theoretical conditions just outlined.

"According to Sidis, whose genius for experimental investigation has done so much to enlarge our knowledge of this difficult field, the conditions leading to hypnosis (which he defines as a condition of abnormal suggestibility), are the following:

1. Fixation of attention.
2. Monotony.
3. Limitation of voluntary movements.
4. Limitation of the field of consciousness.
5. Inhibition (of the diffused activity of the central nervous system.

"The exact correspondence between the theoretical conditions which should, ex hypothsi, lead to a condition of relative automatism and the experimental conditions which are found to lead to the condition of hypnosis are patent."

In the same work I come to the conclusion, as the result of investigation, that "the nature of abnormal suggestibility is a disaggregation of consciousness, a slit, a scar, produced in the mind that may extend wider and deeper, ending at last in a total disjunction of the waking, guiding, controlling consciousness from the reflex consciousness. . . . Normal suggestibility is of like nature,—it is a cleft in the mind, only here the cleft is not so deep, not so lasting, as it is in hypnosis or in the state of abnormal suggestibility; the split is here but momentary, evanescent, fleeting, disappearing at the very moment of its appearance."

We have also shown that the laws of normal and abnormal suggestibility may be stated as follows:

"Normal suggestability varies as indirect suggestion and inversely as direct suggestion

"Abnormal suggestability varies as direct suggestion and inversely as indirect suggestion."

The general law of suggestibility is:

"Suggestibility varies as the amount of disaggregation, and inversely as the unification of consciousness."

It is on those general laws and the nature of relation of the personal consciousness to the subconscious that I have based my method of hypnoidization. In order to reach the dissociated mental states we have to lay bare the subconscious, and this can be effected by the conditions requisite for the induction of normal or abnormal suggestibility, conditions which bring about a disaggregation of consciousness. In cases, therefore, where hypnosis is not practicable and the subconscious has to be reached, we can effect a disaggregation of consciousness and thus produce an allied subconscious state by putting the patient under the conditions of normal suggestibility: Fixation of attention, distraction, monotony, limitation of the voluntary movements, limitation of the field of vision, inhibition and immediate execution.

This is precisely what the method of hypnoidization consists in: "The patient is asked to close his eyes and keep as quite as possible, without, however, making any special effort to put himself in such a state. He is then asked to attend to some stimulus such as reading or singing (or to the monotonous beats of a metronome). When the reading is over, the patient, with his eyes shut, is asked to repeat it and tell what comes into his mind during the reading, or during the repetition, or immediately after it. Sometimes the patient is simply asked to tell the nature of ideas and images that have entered his mind." This should be carried out in a quiet place, and the room, if possible, should be darkened so as not to disturb the patient and bring him out of the state in which he has been put.

Fatigue, physical and mental, especially emotional, is a favorable condition. A prolonged warm bath with relaxation is favorable. A predisposition to sleep is helpful. It is, therefore, best to make the first attempts at hypnoidization late at night, when the patient is both tired and sleepy. In most cases, darkness, quietness repose, the monotonous buzzing of an inductorium are conditions favorable to the induction of the hypnoidal state.

As modifications of the same method, the patient is asked to fixate his attention on some object while at the same time listening to the beats of a metronome; the patient's eyes are then closed; he is to keep quiet, while the metronome or some other monotonous stimulus is kept on going. After some time, when his respirations and pulse are found somewhat lowered, and he declares that he thinks of nothing in particular, he is asked to concentrate his attention on a subjcet closely relating to the symptoms of the malady or to the submerged, subconscious state.

The patient, again, may be asked to keep quiet, to move or change position as little as possible, and is then required to look steadily into a glass of water on a white background, with a light shining through the contents of the glass; a mechanism producing monotonous sounds is set going, and after a time, when the patient is observed to have become unusually quiet, he is asked to tell what he thinks in regard to a subject relating to his symptoms. He may be asked to write the stray ideas down, if speaking aloud disturbs the induced states favorable to the emergence of the dissociated mental states.

In some cases it is sufficient to put the patient in a quiet condition; have his eyes shut and command him to think hard of the particular dissociated states.

Once the hypnoidal state is induced by any of the various methods of hypnoidization, we can either attempt to follow up the history of the development of the malady, or we may chiefly work for the therapeutic effect and treat the present symptoms. It is, howeer, advisable from a purely practical therapeutic purpose to combine the two procedures, the cure is then effective and far more stable. When the history of the origin and development of the disease can not be traced, on account of the age or unintelligence of the patient, the therapeutic effects alone of the hypnoidal states have been utilized.

The getting access to subconscious experiences, lost to the patient's personal consciousness makes the hypnoidal state a valuable instrument in the tracing of the origin and development of the symptoms of the psychopathic malady.

From a practical standpoint, however, the therapeutic value of the hypnoidal state is most important. Our experiments have revealed to us the significant fact that the hypnoidal state is the primordial rest-state; sleep is but a derivative form of rest. In many conditions of disease it is advisable to have the patient revert to a simple and primitive mode of life. Similarly, in *psychopathic diseases a reversion to a simple primitive state proves to be of material help to the patient.* In plunging the patient into the hypnoidal state, we have him revert to a primitive rest-state with its consequent beneficial results. The suggestibility of the state, if skillfully handled, is apt to increase the therapeutic efficacy. Relaxation of nervous strain, rest from worry, abatement of emotional excitement, are known to be of great help in the treatment of nervous troubles of the neurasthenic or of the so-called "psychoasthenic" variety. That is what we precisely observe in the

treatment of psychopathic diseases by means of the agency of the hypnoidal state, the efficacy of which is all the greater on account of the presence of the important trait of suggestibility.

The most important fact, however, is *the access gained through the hypnoidal state to the patient's stores of subconscious reserve neuron energy, thus helping to bring about an association of disintegrated, dissociated mental-systems.*

Dr. John Donley in his article, "The Clinical Use of Hypnoidization" *(Journal of Abnormal Psychology for August-September, 1908)*, gives the following account of the method of hypnoidization and of the hypnoidal state:

"The treatment of that large group of disorders commonly classed as the psycho-neuroses is sufficiently arduous to warrant the assumption of a receptive mood toward any measure that may increase our efficiency. . . . Such assistance is open to us in the hypnoidization of Dr. Boris Sidis.

"Hypnoidization has two things to recommend it, facility of induction and successful results. The technique is simple; there need be no mention of hypnosis, and hence no stirring up of apprehension in the mind of even the most timorous patient.

" . . . Many variations of this particular procedure are of course possible, and the one which the writer has found quite generally useful is the following: The patient is first placed at ease by a few minutes' conversation, during which he is instructed regarding what is about to be done. He is then requested to lie upon the couch, the head of which has been placed close to a faradic wall plate. With his eyes closed he is directed to listen to the monotonous vibration of the ribbon rheotome, and to concentrate attention either upon nothing at all or upon the particular idea or group of ideas or images suggested to him by the physician. At the beginning of the experiment the patient may be somewhat tense and ill at ease, but a few minutes suffice to render him relaxed and to place him in the mental state to which Sidis has given the name 'hypnoidization.' It is during the continuance of this state that one may obtain information valuable for diagnosis, and give suggestions useful for therapeusis.

" . . . During a psychotherapeutic conversation one will often notice a certain attitude of criticism and resistance upon the part of a patient, whereas if the same patient be placed in the hypnoidal state, there is voluntary conversation with the physician, yet a greater readiness to give credence to his remarks. For the purpose of psychotherapy it is often useful to place the patient in a condition of hypnoidization during which a greater influence may possibly be exerted upon subconscious mental processes. There is then a more direct avenue of approach to those subconscious factors that are so potent in determining and influencing self-conscious attitudes; for it has seemed to me that the physical and mental relaxation that characterize the hypnoidal state are precisely the conditions requisite for imprinting ideas upon the minds of neurotic patients.

"The beneficial effects of hypnoidization are to be seen not alone in those cases where submerged, forgotten memories and emotions are operative in the production of mental disaggregation, but also in those numerous instances where the experience causing the obsessive idea or emotion is well known to the upper consciousness.

"In hypnoidal states they were made to reproduce their obsessive thoughts and images and then to describe them in words. When this had been accomplished and they had received further assurance and persuasion from the experimenter, although the purely intellectual content of their obsessions remained known to them, the insistent automatic character and disturbing emotional factors had disappeared. In this metamorphosis of emotional reaction we may observe one of the most interesting and useful attributes of the hypnoidal state."

Dr. Donley gives then a series of cases which he treated successfully from psychognositic and psychotherapeutic standpoints.

The reader is referred to the original article.

"The value of hypnoidization," says Dr. T. W. Mitchell, "in the resurrection of dissociated memories is that which is perhaps best established. And this applies not only to the restoration of the forgotten experiences of ordinary amnesia, but to the recovery of dissociated memories that are of pathogenic significance. . . . Sidis himself has insistently taught that the reassociation of dissociated complexes effects a cure of psychopathic disease. . . . My own experience, so far as it goes, tends to corroborate in every respect the claims put forward by Sidis. . . ."

While in the hypnoidal state the patient hovers between the conscious and the subconscious, somewhat in the same way as in the half-drowsy condition one hovers between wakefulness and sleep. The patient keeps on fluctuating from moment to moment, now falling more deeply into a subconscious condition in which outlived experiences are easily aroused, and again rising to the level of the waking state. Experiences long submerged and forgotten rise to the full light of consciousness. They come in bits, in chips, in fragments, which may gradually coalesce and form a connected series of interrelated systems of experiences apparently long dead and buried. The resurrected experiences then stand out clear and distinct in the patient's mind. The recognition is fresh, vivid, and instinct with life, as if the experiences have occurred the day before.

It cannot be insisted too much that the hypnoidal state is not a slight hypnosis. *The hypnoidal state is a sleep state.* The hypnoidal state is the anabolic state of repose characteristic of primitive life.

The hypnoidal state is an intermediary state between waking and sleep. Subwaking is an appropriate descriptive term of the character of the hypnoidal state. The subwaking hypnoidal state, like sleep and hypnosis, may be of various depth and duration; it may range from the fully waking consciousness and again may closely approach and even merge into sleep or hypnosis. The same patient may at various times reach different levels, and hence subconscious experiences which are inaccessible at one time may become revealed at some subsequent time, when the patient happens to go into a deeper hypnoidal state.

On account of the instability of the hypnoidal state, and because of the continuous fluctuation and variation of its depth, the subconscious dissociated experiences come up in bits and scraps, and often may lack the sense of familiarity and recognition. The patient often loses the train of subconscious association; there is a constant struggle to maintain this highly unstable hypnoidal state, and one has again and again to return to the same subconscious

train started into activity for a brief interval of time. One must pick his way among streams of disturbing associations before the dissociated subconscious experiences can be synthesized into a whole, reproducing representatively the original experience that has given rise to the whole train of symptoms.

The hypnoidal state may sometimes reproduce the original experience which, at first struggling up in a broken, distorted form and finally becoming synthesized, gives rise to a full attack. The symptoms of the malady turn out to be portions, bits and chips of past experiences which have become dissociated, giving rise to a disaggregated subconsciousness. The method of hypnoidization and the hypnoidal states induced by it enable us to trace the history and etiology of the symptoms, and also to effect a synthesis and a cure. The hypnoidal state may not be striking and sensational in its manifestations, but it is a powerful instrument in psychopathology and psychotherapeutics.

For many years my investigations of the hypnoidal state were carried out on subjects and patients, adults and children. The work was entirely limited to the study of such states as found in man. Having found that during the hypnoidal state the condition of mental plasticity is quite pronounced for therapeutic purposes, and having effected many cures of severe psychopathic maladies, ranging throughout the whole domain of so-called hysterical affections, neurasthenia, obsessions, drug habits, especially alcoholic ones, the hypnoidal state has become, in my practice, quite an important therapeutic agent. Lately, others have obtained excellent results with the hypnoidal state in their treatment of various functional, psychopathic maladies.

Perhaps it may be opportune here for the sake of further elucidation to give a few extracts from the Presidential address on "The Hypnoidal State of Sidis" given by Dr. T. W. Mitchell before the Psycho-Medical Society of Great Britain, January 26, 1911.

"The history of science," says Dr. Mitchell in his address, "affords us many instances in which the neglect of residual phenomena in experimental research has led to the overlooking of important facts, and prevented investigators from making discoveries which, had they paid attention to their residues, they could hardly have missed. The great chemist, Cavendish, probably missed the discovery of argon, because in his estimate of nitrogen of the air he neglected a residue which his experiments showed him could not be more than 1/120 part of the whole. More than a hundred years afterwards this residue was accounted for by the discovery of argon.

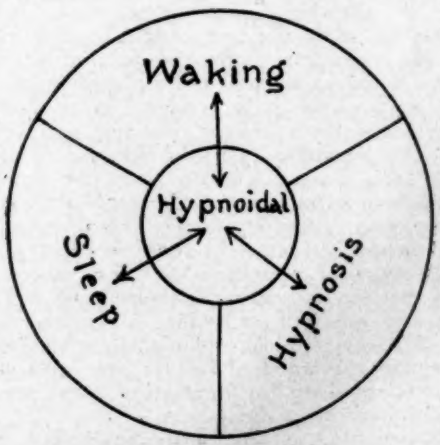
"Now in the history of psychotherapeutics, from its earliest beginning down to our own time, we find many cases where the circumstances under which curative results have been obtained render it difficult for us to range these results under the category of the therapeutics of suggestion.

"Such cases as these may be regarded as the residual phenomena of the therapeutics of suggestion, and just as Cavendish and his successors too readily assumed that all the so-called nitrogen of the air was the same as the nitrogen of nitre, so we may be missing some important truth, if we too readily assume that all these therapeutic results are due solely to suggestion. The value of suggestion during hypnosis is well attested, and the possibility of effecting physiological and psychological change by its means is supported by a large amount of experimental evidence. But evidence of this kind is lacking in regard to suggestion without hypnosis, and until it is forthcoming we are justified in receiving with some suspicious account of the therapeutic efficacy of suggestion in the waking state. We seem bound to consider whether some state of consciousness intermediate between waking and hypnosis may not be artificially induced and utilized for the purpose of giving therapeutic suggestion.

"The scientific investigations of states of consciousness intermediate between waking and hypnosis is a contribution to psychology and psychotherapy which we owe practically to one man—Dr. Sidis. A research into the nature of suggestibility carried out by him some 14 years ago (Dr. Mitchell, 1911) (22 years ago) led him to formulate certain laws and conditions of normal and abnormal suggestibility. . . . By keeping the patient for a short time under the conditions of normal suggestibility we induce a peculiar mental state which Sidis named *hypnoidal state*. The process by which it is induced is, Sidis calls, *hypnoidization*.

"By the use of various methods a state of consciousness is induced which differs from full waking, but is not hypnosis or ordinary sleep.

"The hypnoidal state is an intermediary territory, on the border land of waking, sleep and hypnosis. In the course of a valuable experimental investigation of sleep in man and the lower animals, Sidis discovered that the hypnoidal state is a phase of consciousness which is passed through in every transition from one of these states to another. In passing from the waking state to ordinary sleep or hypnosis, there is always a longer or shorter hypnoidal stage. In the practice of hypnoidization the patient sometimes drops into hypnosis, or he may fall asleep without touching on hypnosis. And so also in awakening from sleep or from hypnosis, the hypnoidal state has to be passed through. Sidis found that the further we descend in the scale of animal life, the more important does the hypnoidal state become in relation to bodily rest and recuperation, and he concludes that it is the primitive rest-state out of which both sleep and hypnosis have been evolved.



"The relation to each other of waking, sleep, hypnosis, and the hypnoidal state may be represented in a diagram in which the primitive hypnoidal state is represented as a nucleus from which the segments of the larger circle, waking, sleep and hypnosis, have

arisen. The transition from one of these segments to another can take place through the central territory with which they each have relations.

The spontaneous occurrence of the hypnoidal state in man is as a rule merely a transitory stage in the alternation of waking and sleep. From the point of view of evolution it is a vestige derived from a long race of ancestors, a rudimentary function which has been superceded by the more highly specialized rest-state, sleep. But it can be artificially induced and maintained by the methods which have been described, and it can be utilized with effect in the treatment of psychopathic disorders.

"The therapeutic use of the hypnoidal state is a somewhat complex subject, for hypnoidization may be employed as an adjunct to other methods or as a curative measure in itself.

"The full record of hypnoidization is in the account of the well known Hanna case, given in his (Sidis' and Goodhart's) *Multiple Personality.* This was a case of total amnesia, following a severe injury (to the head). The patient, a cultured clergyman, was reduced to the mental condition of a newborn child. All his former acquisitions and memories have entirely disappeared, and he had to start learning everything again from the beginning. When he (the patient) was put into the hypnoidal state various fragmentary experiences of his past life emerged into consciousness, demonstrating to his observers that his lost memories were merely dissociated, and not destroyed. This same method (hypnoidization) was made use of in other cases of amnesia, and it was found to be of great assistance in effecting the resurrection of dissociated mental material and its reintegration in consciousness.

"With the progress of his studies in Psychopathology, the reintegration of consciousness became, for Sidis, the aim of all therapeutic endeavor in connection with maladies that are associated with, or produced by, mental dissociation. The recurrent psycho-motor states of functional psychoses, insistent ideas, imperative concepts, persistent, or periodically appearing emotional states, so called psychic epilepsy, and other states of dissociation all lent themselves to treatment by hypnoidization. By its means the dissociated complexes could be recovered, the psychogenesis of the malady could be traced, a synthesis of consciousness effected, and the patient thereby cured. As his confidence in his method increased, Sidis gradually extended its employment, until at the present time he seems to use it in every kind of disorder in which psychotherapy is indicated.

"I have no doubt that Dr. Bramwell induces in his patients a state of consciousness which is identical with the hypnoidal state of Sidis.

"Sidis expressed his opinion that some of Freud's success may be due to the unconscious use of the hypnoidal state; and the conditions under which Freud (and the psycho-analytic disciples) conducts his analysis render this supposition not improbable.

"My own experience, so far as it goes, tends to corroborate in every respect the therapeutic claims put forward by Sidis. I have observed the good effects of the hypnoidal state apart from any other measure."

"In his later writings Sidis insistently maintains that the use of hypnoidization alone is sufficient to cure certain morbid conditions. He bases this claim on the fact that he has found the hypnoidal state effective towards this end, and he interprets his results as being due to a release of reserve energy which has been locked up in the inhibited and dissociated systems or complexes.

"The PRINCIPLE OF RESERVE ENERGY is based upon a wide generalization of facts, namely, that far less energy is utilized by the individual than is actually at his disposal. In the struggle for existence, those forms of life which have accumulated a store of reserve energy that can be drawn upon in emergencies, have the best chance for survival."

The PRINCIPLE OF RESERVE ENERGY is of the utmost importance to abnormal psychology. The principle is based on a broad generalization of facts—psychological, physiological and biological—namely, that far less energy is utilized by the individual than there is actually at his disposal. A comparatively small fraction of the total amount of energy, possessed by the organism, is used in its relation with the ordinary stimuli of its environment.

The energy in use may be regarded as the *kinetic or circulating energy,* while the energy stored away is the *reserve energy.* There must always be a reserve supply of energy requisite for unusual reactions in emergency cases. Those organisms survive which have the greatest amount of reserve energy, just as those countries are strong and victorious in the world-market which possess the largest amount of reserve capital to draw upon in critical periods.

As life becomes more complex, inhibitions increase; the thresholds of stimulations of a complex system rise in proportion to its complexity. With the rise of evolution there is a tendency to increase of inhibitions, with a consequent lock-up of energy which becomes reserve. Now there are occasions in the life of the individual, under the influence of training and emotional trauma, when the inhibitions become unusually intense and tend to smother the personality, which becomes weakened, impoverished in its reactions and is unable to respond freely to the stimuli of its environment. The inhibited system becomes inactive and may be regarded as *dissociated* from the cycle of life.

In case of an emotional trauma there is often a breach in the continuity of association. The affected system becomes dissociated from the rest of the personality and is like a splinter in the flesh of the individuality. Its own threshold, when tapped, may be very low, but it is not directly accessible through the mediacy of other systems; hence its threshold appears unusually or pathologically high. When the inhibitions are very high they must be removed. This removal of inhibitions brings about an access to the accumulated energy of the inhibited systems. In case of disjunction or break of continuity we must stimulate the dormant reserve, energy of the systems, and thus assist the process of repair and bridge the breach of associative continuity. A new, fresh, active life opens to the patient. He becomes a "reformed" personality, free and cheerful, with an overflow of energy.

The hypnoidal state is essentially a rest-state characterized by anabolic activity. There is a restitution of spent energy; inhibitions become removed, and access is gained to "dormant" systems or complexes. The awakened "dormant" complex systems bring with them a new feeling-tone, a fresh emotional energy resulting in an almost complete transformation of personality.

As an illustration of the transformation effected, I take at random the following extracts from some of the letters written to me by patients who have experienced this welling up of reserve energy: "Indeed, were I to fill this entire sheet with expressions of the gratitude which wells up from my inmost heart it would be only a beginning of what I feel. Surely the darkness of the world has been dispelled since this *new light* has illuminated my soul, and I *feel that this wondrous light will never fail me.* It were vain to attempt to thank you for this wonderful transformation."

A letter from a patient reads: "You will be glad to know that all is well with me. Life is one happy day. I am a marvel to my friends in the way of happiness and cheer. I have to confess that I feel almost wicked to be so happy."

Another letter runs as follows: "Next to the gladness in my own restoration, I am rejoiced at the wonderful transformation that has come to my dear friend T——— from your treatment. She writes me most enthusiastically of her steady and sure progress toward the goal of perfect health, of her strength to take up the home duties which had been so burdensome and which she now finds a delight in the doing of them; and of her husband's and friend's joy in the transformation that has been wrought in her."

The following extract from a letter, written to me by a patient, an experienced English surgeon now in charge of a hospital in England, whose case was severe and chronic, dating from early childhood, is extremely valuable, both on account of his medical training and mental abilities which make him an excellent judge as to the fundamental change and cure effected:

"It is now exactly two years since I was undergoing treatment at your kindly and sympathetic hands. I remember that you once told me that the seed sown by you would probably take this length of time to come to fruition. Therefore, it may not be without interest to you to receive a supplement to many other letters in which I will endeavor to summarize my progress—for the last time.

"I have no longer even the least lingering doubt that you can count me among your most brilliantly successful cures. I say this after many—too many—heart searchings which are probably characteristic of my somewhat doubting temperament. At first, I was disappointed with the whole business: I suppose I looked for strange and dramatic events to occur which would change my whole personality and temperament in a short time. Nothing so exciting happened: I left Portsmouth still feeling that I owned the same name, and very much the same 'ego' that I arrived with. I was unaware that any profound psychological operation had taken place. To be candid, I did not think it had—the beginnings, no doubt, were there—but no more. But now when I carry my mind back to the type of obsession which used to assail me—is there any change? Good God! I behold a miracle, although it has come about so silently that I can only realize the difference by comparing the present with the past. "In conclusion I can only send you my undying gratitude. . . You have saved me from what, I honestly believe, would have one day resulted in deliberate suicide which I often contemplated as the one solution for my trouble." . . .

These extracts are typical of many others, and clearly show the enjoyment of new strength and powers until now unknown to the patient. Fresh reservoirs of reserve energy have been tapped and have become available in an hour of dire need. The patient has light and strength where there were darkness and depression. We are confronted here with the *important phenomenon of liberation of dormant, reserve energy.* The patient feels the flood of fresh energies as a "marvelous transformation," as a "new light," as a "new life," as a something "worth more than life itself."

The hypnoidal state helps us to reach the inaccessible regions of dormant, reserve energy, helps to break down inhibitions, to liberate reserve energies and to repair the breaches or dissociations of mental life. The painful systems become dissociated, disintegrated and again transformed, reformed, and reintegrated into new systems, full of energy and joy of life. The whole process is one of disintegration and redintegration of psycho-physiological neuron systems with the awakening of dormant, reserve energy, resulting in a complete and permanent cure of the patient.

SOME FOSSIBLE RELATIONS OF DEFECTIVE NUTRITION TO DISEASE.

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Within the past two years several notable articles on the relation of cancer to a deficiency of mineral salts in the human body have apeared in leading medical publications. In one, Dr. W. Bryant Guy, discussed the possibilities of a deficiency of aluminum; in another, Dr. E. P. Robinson considered the possibilities of the presence of an overproportion of sodium; in the third, a physician whose name unfortunately cannot be recalled, took up the effects of a deficiency of manganese. In each case the writer confined himself pretty closely to the facts that he had established by continued research, and the papers themselves are definite contributions to knowledge.

Medical science cannot blind itself to the fact that, in spite of its efforts, cancer is increasing at a rate not far from two and one-half per cent a year. Perhaps this ratio is open to criticism; the alarming increase of the disease is a fact.

Now it is not worth the while to discuss whether it is a germ disease or a deficiency disease. The fact to be noted is that a cog in the patient's vitality has slipped and there is lacking the resistance to disease

The analysis of human remains undertaken by Dr. Guy, showed that aluminum was not found in the ashes of several cancerous bodies, and that it was present in the ashes of non-cancerous cadavers. Granted that an investigation so limited in scope does not establish the fact sought, it does lead to a probability of great importance—namely, that if aluminum is a normal constituent of the human body, the body without it is deficient in nutrition, to the extent of that element.

Having reached this conclusion, Dr. Guy began to administer aluminum to his cancer patients—not as a medicine, but as a food. In his paper he details some hopeful results, which it is not necessary to quote here.* Now it is evident that such compounds as the oxides, and the inorganic, insoluble compounds of aluminum are unfit for administration; Dr. Guy therefore tried the acetate, but found the lactate better. And there is good reason: lactic acid contains a radical that is not

* MEDICAL TIMES, July, 1917; page 191.

only found in the human body—it is formed there. Its salts are readily absorbed and metabolized. Some day, perhaps, an amino-acid may be prepared from muscle which, in combination with aluminium, will possess greater virtues than the lactate.

Dr. Robinson's investigations have been along the same line, but they contain an additional hypothesis—namely, that an excess of sodium by disturbing metabolism may cause cancer, or at least favor its progress. So far as a disturbance of metabolism by an excess of sodium is concerned, Dr. Robinson's contention is established. McCollum has shown beyond reasonable doubt that an excess of sodium destroys or neutralizes the vitamines which he designates as "water-soluble B"; and whatever other disorders may result from the non-action of these vitamines, impaired nutrition is a certain result. Dr. Robinson therefore prescribed a treatment designed to expel the excess of sodium, namely, the administration of potassium. In this method of treatment his chemistry is not at fault. Potassium is a stronger base than sodium and in many combinations will not only displace it, but replace it.

Now, since most of the world has been placed under food restrictions, potassium, calcium, and phosphorus deficiency has become so apparent that it has caused not a little alarm. It should justly cause greater alarm and righteous indignation. The surfeit of "ersatz," or robbed foods, and the shortened food supply due to high prices have resulted in a condition which it is not an exaggeration to call a mild famine.

Dr. Robinson obtained most encouraging results from his method of treatment, which needs not be described. There occurred a marked increase in the elimination of sodium, according to his reports, followed by an equally marked decrease of sodium. From the viewpoint of chemistry that is exactly what should have occurred.

The excessive use of sodium salts in the preparation of foods—especially of the acid carbonate—is a matter to which food-chemists are beginning to interest themselves. So far as sodium chloride is concerned we cannot get away from it. Sea air contains it; so does the dust content of any air that gets into human lungs. And either one delivers to the human body all that it can take care of. Furthermore, we shall never suffer a sodium famine while the baking-powder man is on the job. If our friends who manufacture the various sodium hypophosphite compounds would consent to a substitution of potassium and calcium for sodium, they would serve the advertising page equally well, and the public stomach infinitely better. The doctor would be the chief sufferer.

Potassium as a medicine has a definite value; as a food it is quite another thing. In the grains it is closely associated with calcium and phosphorized fats. So it is possible that, while using it for a medical purpose, Dr. Robinson was also doing nature a good turn by replenishing a food deficiency. And if the physician finds it necessary to prescribe it as a food, the nearer the prescription approaches nature's preparation, the more assimilable the remedy will be. Grain germs are rather poor in the vitamines as compared with the gluten layer, but their food value with respect to phosphorus and the amino-acid mineral salts cannot be disregarded.

The purport of the report of the physician who used manganese in the treatment of cancer was to the effect that a material improvement followed its use. According to Potter, manganese is apparently an accidental constituent of the human body, and is not an essential. The statement is fair as it does not assert positive knowledge. When a continued search fails to discover manganese combined with a vitalizing acid, the statement may be made positive. At the present time it is not possible to affirm it. Iron in the stomach and intestines may be an accident, but, as a vitalized compound in the blood and in the spleen of an infant, most certainly it is a normal and an essential constituent. Even were a hypothetical manganese content of the human body only a small fraction of a milligram, the absence of it can be defined in one way only—manganese starvation.

Now all this does not controvert any knowledge that has come to medical science concerning such diseases as Bright's, cancer, or arterial sclerosis. It does suggest, however, that the relation between nutrition and constitutional disease is still a field which will bear a more searching investigation in the future than it has had in the past. Bio-chemistry, the chemistry which little by little is unlocking the mysteries of life, is in its infancy. Even though we assume that the cases reported by Guy and Robinson are merely specific instances, they establish the fact that a change in nutrition by a specific element brought about a change in the progress of a disease.

Perhaps it is claiming too much to assert that, when the chemistry of nutrition is mastered, the chemistry of constitutional disease will have become an open page; nevertheless, such a claim will not be far from the truth. It has long been recognized by physicians that the organic salts of many elements are much more readily assimilated than are inorganic salts of the same elements, and this is generally true of the metallic bases. But McCollum has shown that the amino-acid salts of such bases as iron, calcium, and potassium, together with the phosphorized fats, are so intimately connected with life that the term "vitalized compounds" cannot be tossed in the scrap heap. And though the term "vitamine" may not be wisely chosen—apparently the vitamines are not amino-compounds—the thing *per se*, is pretty close to the ultimate secrets of nutrition—assimilation and elimination.

Five hundred years or more ago a physician-alchemist expressed his views of the "humors of the body" and their inter-relation in Latin verse. The name, the date and the verse are gone, but a roughly-formed English translation presents the ideas he held:

curs- f- w- dea- dis- and p-
A ed iend rought th, ease ain.
bless- fr- b- heal- and ag-

If a patient wrote this on untanned skin and wrapped the latter around his waist, his liver would trouble him never more.

Perhaps the idea presented might be meaningless to the physiologist; nevertheless it suggests possible reactions to the chemist. Assimilation and elimination are mutual; they also are strictly chemical processes. Perhaps such ailments as Bright's, cancer, and arterial-sclerosis may prove incurable after having reached a certain stage of progress; possibly they may not be preventable. If they are preventable, however, the researches such as Funk, McCollum and others, have been making in the chemistry of nutrition, are likely to lead the way to discovery. To assume that life is a mystery sacred from human study because of Divine origin is on exactly the same plane as a pastor's denunciation of the quarantine against cholera, for the alleged reason that it was a God-sent punishment for the sins of humanity—and such a denunciation was uttered from a pulpit scarcely more than half a century ago.

Meteorological Laboratory.

THE POSTAGE STAMP AS A POSSIBLE SOURCE OF INFECTION.

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GUSTAVE HORSTMAN,

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Not long ago, one of us was in need of some postage stamps. As usual, he went to a drug store and purchased the needed supply. The clerk who waited on him came out from behind the prescription counter and after ascertaining the wants, opened a drawer beneath one of the counters, gently moistened his left middle finger and picked up half a sheet of stamps from which he separated the required number.

The thought came to the buyer that he had received more than he was entitled to. He had not only received the number of stamps paid for but also a supply of saliva to which he could not lay any just claim.

We then decided to make an investigation for the purpose of ascertaining the bacteriological contents of postage stamps, as supplied in the general run of such transactions. For this purpose fifty sterile test tubes, each containing ten cubic centimeters sterile normal saline solution and plugged with sterile, non-absorbent, cotton were prepared.

In order to obtain a fair average picture, collections were made through widely distributed areas. Post office stations and substations, as well as drug stores and stationery stores were visited. In each of these either a two-cent or a one-cent stamp was purchased, and immediately after the purchase the stamp was placed in one of the test-tubes.

On returning to the laboratory the test-tubes were gently shaken and one cubic centimeter of the saline from each tube was plated on agar medium in the usual manner, using the pour method. After forty-eight hours incubation at 37.5° C. the colonies were counted, where not too numerous. Smears were made from separate colonies and stained by Gram's method. Wherever indicated fishing was done and from the pure cultures so obtained differential media were inoculated and cultural characteristics noted.

We beg to report the following:

Summary.

Fifty specimens were examined, of these—

1	contained	1	colony	3	contained	10	colonies
4	"	2	colonies	1	"	14	"
2	"	3	"	1	"	16	"
3	"	4	"	2	"	17	"
1	"	5	"	1	"	18	"
3	"	6	"	1	"	19	"
2	"	8	"	2	"	22	"
2	"	9	"	1	"	34	"

20 contained colonies too numerous to count (overgrown).

CHART NO. 1.

Spec. No.	Where Purchased	How Kept in Stock	No. Colonies	Colon Bacilli	Typhoid Bacilli	Staphylococci	Streptococci	Pneumococci	Diphtheroid Bacilli
1	Branch P. O.	Exposed on desk	10	X		X			
2	Sub-station	In drawer	Overgrown			X			
3	Drug store	In drawer	Overgrown			X	X		
4	Sub-station	Box, exposed	Overgrown			X	X	X	
5	Drug store	In drawer	4	X					
6	Sub-station	In drawer	Overgrown	X		X			
7	Drug store	Cash register	Overgrown	X					
8	Sub-station	In drawer	Overgrown			X		X	
9	Sub-station	In drawer	Overgrown			X			
10	Drug store	In drawer	22					X	X
11	Stationery	Covered box	3				X		
12	Drug store	In drawer	Overgrown			X	X		
13	Sub-station	In drawer	6			X	X		
14	Drug store	In drawer	6				X		
15	Drug store	Cash register	9			X			
16	Drug store	In drawer	Overgrown				X	X	X
17	Sub-station	In drawer	8			X		X	
18	Post office	Exposed on desk	Overgrown			X	X		
19	Drug store	In drawer	8			X	X		
20	Drug store	In drawer	Overgrown	X		X	X	X	X
21	Sub-station	In drawer	4			X			X
22	Sub-station	In drawer	Overgrown			X			
23	Drug store	In drawer	Overgrown	X			X		
24	Drug store	In drawer	2			X	X		
25	Drug store	In drawer	Overgrown			X	X		
26	Drug store	Cash register	2			X	X		
27	Sub-station	In drawer	Overgrown			X		X	
28	Drug store	In drawer	17			X		X	
29	Drug store	In drawer	3			X	X		
30	Drug store	In drawer	Overgrown	X					
31	Drug store	In drawer	17			X			
32	Drug store	In drawer	Overgrown			X		X	
33	Drug store	In drawer	4			X		X	
34	Drug store	In drawer	6			X		X	X
35	Drug store	In drawer	2			X			
36	Stationery	In drawer	1			X			
37	Drug store	Cash register	22	X		X	X	X	
38	Drug store	Cash register	5			X		X	
39	Drug store	In drawer	9			X	X		
40	Drug store	In drawer	10			X	X	X	
41	Drug store	In drawer	2			X			
42	Sub-station	In drawer	34			X			
43	Drug store	In drawer	Overgrown	X		X			
44	Stationery	In drawer	14	X		X		X	
45	Drug store	In drawer	16			X			
46	Drug store	In drawer	Overgrown			X			
47	Drug store	In drawer	18				X		
48	Drug store	In drawer	19			X	X		
49	Drug store	In drawer	10			X	X		
50	Drug store	In drawer	Overgrown			X			

The examination of the stained smears and differential media gave the following findings:

Staphylococci only	12
Streptococci only	3
Colon bacillus only	3
Staphylococci and Streptococci	12
Staphylococci and Colon Bacil.	3
Staphylococci and Pneumococci	6
Staphylococci and Diphtheroid	1
Streptococci and Colon Bacil.	1
Pneumococci and Diphtheroid	1
Staphylococci, Pneumococci and Diphtheroid	1
Staphylococci, Streptococci and Pneumococci	2
Staphylococci, Colon Bacil. and Pneumococci	1
Streptococci, Pneumococci and Diphtheroid	1
Staphylococci, Streptococci, Pneumococci and Colon Bacil.	2
Staphylococci, Streptococci, Pneumococci, Colon Bacil. and Diphtheroid	1

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THE IMPORTANCE OF AN EARLY DIAGNOSIS OF WEAKFOOT IN CHILDREN.

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"An early diagnosis of tendencies to deformity of the feet is of much importance to a patient."—Knight's *Orthopædia*, 1874.

Most of the patients coming under our notice for strained, weak or flattened-out feet are well into the adult stage of life, and very often the question arises as to how long the process tending to create deformity has been going on to bring it to such a stage as to cause the patient sufficient pain to seek advice.

Amongst other things the war has emphasized the need of more attention being paid to foot troubles. The selective draft brought out the fact that over 60% of the young men examined were suffering from pedal deformities, the greater part not serious enough for rejection. These latter after having been inducted into the Army frequently developed into pronounced cases of weakfoot and special exercises had to be devised for them. The weakfoot disability brought out in these cases through the strenuous demand made upon them in the Army would have manifested itself in civil life just the same, only the process would have been a slower one.

From examination of the feet of five hundred children at the Children's Clearing Bureau of the Department of Public Charities of the City of New York, I have come to the conclusion that the attitudes of deformity mentioned above find their origin, in most cases, in early childhood. The children ranged from five to fifteen years and a most thorough examination brought out the fact that over 65% either had the condition of weakfoot with all the symptoms more or less pronounced, or a marked tendency toward it.

It is well to consider that none of these children complained of pain and that the feet were normal as far as their daily tasks were concerned, so that the symptoms were merely objective and but for routine examination might never have been noticed. In most cases the course of the tendo-achillis had been changed and the head of the astragalus was noticeably below the inner malleolus.

Owing to the fact that the children remained but a short time at the Bureau, preparatory to being sent to other instituions, it was well-nigh impossible to start as vigorous a treatment as in many cases was indicated. Special exercises were given under the supervision of a physical director and when indicated the inner border of their shoes was raised.

These conditions in childhood are not difficult to overcome, but great perseverance is essential.

There is another phase which must not be lost sight of and that is the difficulty of persuading the parents that there is something wrong with the child which calls for prolonged treatment, for so far as their observations are concerned they most often cannot discover anything abnormal. If the child would cry, limp, or otherwise complain (sometimes indeed pains in the muscles of the leg or foot are described as "growing pains"), wise parents would seek immediate relief, but as apparently the child is normal, it is very often a difficult and unenviable task to make them realize that a deformity exists which will increase with age.

It has become quite the custom with intelligent parents to send their children to a dentist once or twice a year for routine examination, in fact, very often the family physician is called upon to make a general examination to ascertain whether they are in good health. But an examination of the feet in order to find out if a child is walking correctly, or if it shows bad effects caused by too short stockings or faulty shoes, or by overweight, belongs still to Utopia. The judgment of children's feet is largely left to shoe clerks who, ignorant of the anatomy or physiologic functions of the foot, merely will recommend some shoe (and they always have the right shoe in stock) as an advertised panacea for all ills.

The following statistics referred to by Walsham are rather interesting. During ten years Dr. Hughes in the St. Batholomew's Hospital Clinics treated 1,078 patients for acquired flatfoot. The ages at which flatfoot was developed—by which he evidently means when they first came under his notice or when the patients first felt any symptoms—ranged from 2 *and under* (!) to 63 years old. Out of the 1,078 patients there were 754 under twenty years.

177 Joralemon Street.

THE DOCTOR AND THE DRUG PROBLEM.

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The solution of the drug habit problem lies largely in the hands of the medical profession, which must necessarily assume the responsibility of prescribing and administering all habit-forming drugs. In no other way can the problem be settled.

This implies that the medical man should be fully informed as to his rights and limitations in the prescribing and administering of such drugs. For no physician can intelligently take up the treatment of a drug patient, and make an intelligent classification without finding out how, and for what reason, the drug is being taken.

He must ascertain whether the patient is dependent on the drug for the reason of permanent physical disability, or whether he takes the drug just for the drug's sake.

If there is any doubt in his mind as to the diagnosis he should call in, preferably, a member of the Board of Health, and have this physician concur in his diagnosis. In doing so he will have his findings confirmed, and be officially authorized by the Board of Health to prescribe for the particular patient.

The physician will then be able to render to this patient the service which he alone is capable of rendering, and will safeguard his patient against any imposition whatsoever, and help free the minds of patients of this type of all anxiety.

This type of drug patient should be prescribed for over the maximum period permitted by the authorities, with a minimum of expense, together with an assurance that they can secure their drug through the proper channels, at a minimum cost—besides avoiding any physician's fees not absolutely necessary—and the prescribing of the drug at unnecessarily short intervals.

Among patients who are taking the drug for the drug's sake there are two classes—one without means, and one with means. And yet these patients must be disposed of in one way or another.

The physician should, in the beginning, understand just what is necessary, in order to benefit patients of this type. He should realize that he cannot make any progress whatsoever, in prescribing

for these patients, hoping by gradual reduction, from time to time, to get the desired results.

He should know that putting into the hands of the patient any drug he may administer to himself, accompanying these drugs with remedies prescribed for various complicated conditions, will inevitably prove futile. He must remember that such patients, to be helped, must be under constant surveillance, and that merely to cut the amount of the drug down to the minimum dose achieves no victory.

For the final elimination of either the maximum or the minimum quantity of the drug means practically an equal amount of discomfort to the patient. And, besides, the resorting to quantities of hypnotics, as practiced under the depriviation method, hoping for a satisfactory result; in the end means total failure.

It is obvious that the state and municipal authorities must assume a certain responsibility for the medical care of this class who are without means, and the medical men in every county where physicians have organized, should come together, and, with the authorities, take up in a constructive way the responsibility of providing definite medical treatment and care for these patients.

The authorities should then be helped in every way by the medical profession to carry out the proper treatment and care, under strict principles of segregation.

It is unfortunate, but it is a fact, nevertheless, that with but few exceptions we find that little or no provision has been made for caring for this type of patient by the state and municipal authorities anywhere. In the first place, I do not think that proper consideration is given to this type of unfortunate. The taking of drugs, with few exceptions, is being treated as a crime, instead of as an illness.

This means that nothing short of definite institutional treatment is going to prove worth while in the last analysis. It means that the tightening of the nets in the illicit prescribing and administering of such drugs—under present circumstances—is going to promote an increase in the illicit traffic in such drugs.

Those who have been acquiring such drugs in this way, and who are not already familiar with the illicit avenues by which such drugs may be procured, are bound to drift into such channels.

Then we will have compounded a felony, as we have not only neglected to make the proper disposition of such patients, but in addition to his drug taking he will be acquiring drugs illicitly, and thus develop a life and atmosphere that means absolute degredation and deterioration—both moral and physical.

Those who know these people know that the patient is willing to make any sacrifice whatsoever to acquire his drug. All this must be taken into account, as the patient will find that there are bound to be more and more drastic conditions required from the psysician in prescribing and administering such drugs, and greater and greater restrictions in their traffic.

The physician should make it his personal business to see that his patient, who has means, should have such treatment as will prove most efficacious. This means that the physician should personally acquaint himself with the various institutions for the treatment of drug habitues, as well as with the treatment there carried out, and with the accredited results of such treatment. For the physician assumes a great moral responsibility in recommending any institution to his patient. The conscientious practitioner has nothing to gain, except to see his patient benefited; while he has everything to lose, for himself and his patient, if for any reason a patient does not get proper treatment and care, and if, in the end, the medical results should prove unsatisfactory.

It is conceded by the best medical authorities that no progress is made until the patient is first definitely freed from the effects of his drugs. In the classification of such patients it will be found that with but few exceptions, their physical condition is such as to warrant taking up definite treatment for drug addiction.

It must always be remembered that the one thing foremost in the minds of such patients is the question of the amount of physical discomfort they mav have to bear. They are misled and discouraged very often by those claming to secure for them definite results in treatment without any physical discomfort. Patients entering such institutions are only too sympathetic to those who claim to "be able to take them along in easy stages, and avoid physical discomfort."

Therefore, patients, so far as they themselves are concerned, are as a rule not eligible to enter into business plans and arrangements for the treatment of their own cases.

How, then, can a physician proceed to safeguard his patient against any unnecessary charge, and at the same time insure getting the medical result desired?

The securing of a definite medical result in the treatment and care of a drug addict is only the beginning of help. The physical, the mental, and the sociological aspects of this problem must be considered. The after care of these cases for this reason is of paramount importance. And every consideration should be given to their rehabilitation.

In outlining a course of procedure for these patients, I dislike very much having to "talk shop," but it will be impossible for me to tell the physician what he should do, without telling him on what I have based my advice. For it might fail to carry with it the importance which it should carry.

The medical limitation of treating a patient for drug addiction is to first free the patient from the effects of his drugs. This means freeing him from all craving, desire or feeling of the need of drugs, so that when he has been physically reconstructed, he is in no way dependent upon any other form of medication.

He is not obliged to take something to make him sleep, or to quiet his nerves. And remember, NO DRUG PATIENT IS SAFE WHO MUST BE TAKING SOMETHING, WHETHER IT IS A DRUG OR NOT. These patients must be put in physical condition where they are functioning normally; where they feel sure of themselves, and where they are able to take up their accustomed work without discomfort.

Now, as previously stated, no progress is made in helping these people until first a definite medical result is secured. For the information of the reader, I would like to say that in going over case histories for a period of nearly twenty years, and having today on file complete bedside histories of all cases that have been treated, that with too few exceptions

to be recorded, there is never any need of taking a patient over a longer period than from three to five days, without getting a complete and definite medical result.

This does not mean that the patient is subjected to harsh treatment, or that the treatment is necessarily heroic. For by bringing about this definite physiological change, everything is accomplished without any unnecessary discomfort—or none that cannot be easily borne by the patient—without any fear of mental or physical complications in any way whatsoever.

These statements can be made definitely in view of the fact that practically all of these patients come directly through their own physicians, and many of these physicians are in personal attendance, thereby being able to observe at first-hand medications carried out, and the methods employed. Therefore, on account of the way this work is carried out, great numbers of physicians—from four to six hundred a year—have an intimate knowledge of this work.

In view of the fact that all the knowledge we have gained in connection with this work has been disseminated to the medical profession through the highest possible medical channels, and that medical men and those who know us realize that we have been glad to render whatever assistance we could to physicians everywhere,—they have felt they could, at any time, apply for medical information and advice. This we would like every medical man to feel applies equally to him.

Institutions careful in the selection of drug cases for treatment will accept only those cases that they feel in advance they will be able to benefit. Such institutions know the limit of medical help they can render, and are willing to make fixed fee charges in advance, covering a certain definite period.

Where these definite methods are practiced it means that, in a very few days, the institution knows whether such a patient can be benefited. It does not mean any long drawn out period of treatment, or any unnecessary expense to the patient. I would exact from the institution accepting such a case for treatment, the proviso that, if they found, that for any reason the institution was unable to complete the treatment, that I would be promptly advised. For I think the physician owes it to his patient to see that he is in every way safeguarded in such institutions as accept these cases for treatment.

I would suggest that a full and detailed report of a patient be first secured, taking up the history of how and why he began taking the drug, prior to his being sent to an institution. Then I would get an opinion from the institution receiving the patient as to whether such patient would be eligible for treatment. These would be innovations that would revolutionize the present method of treating drug addicts.

The medical men of this country can, with a little effort, clean up this whole drug matter. And they should do so. They merely need to remember that there is no type of sick person on earth that can be checked up so accurately as can the man who takes drugs. Either he must have a drug, or else he is free from it and does not need it. There is no happy or comfortable middle ground.

In a serous fluid, especially if tuberculosis be suspected, coagulation of the fluid should be prevented whenever possible. If a clot forms, it generally contains most of the bacteria and cells and should therefore be examined carefully.

LARGE FAMILIES AND LONGEVITY.

CASPER L. REDFIELD,
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Each woman is the daughter of a woman who produced children. Both of her parents came from mothers who produced children. And all four of her grandparents came from mothers who produced children. In fact, no matter how far we may go back, no person ever had a female ancestor who failed to produce children. Consequently, any woman who goes through life without producing children, leads an unnatural life—a kind of life never lead by any female ancestor.

The majority of us are children of parents who produced fairly large families. Our parents were the offspring of parents who produced large families. And our grandparents were members of large families. While this is not literally true for every family in every pedigree, still it is true to such an extent that when we extend pedigrees back four or five generations, every one of us came from families averaging six or more individuals for the entire lot. Consequently, when any person goes through life without producing and caring for more than four children, that person is leading a life which is more or less abnormal in that it is unlike those led by all of his ancestors in all of the ages of the past.

While each one of us came from ancestors who, generation after generation for an indefinite length of time in the past, produced families averaging six or more children each, it should not be assumed that there ever was a time when whole generations multiplied at any such rate as that. At such a rate of multiplication, the entire present population of the earth could come from a single couple in twenty generations, or about six hundred years of time.

The fact is that we of the present generation came from only a part of the generation which preceded us. That generation, in its turn, came from only a part of the generation which preceded it, which means that we came from only a small part of the generation which included our grandparents. Going back to the generation of which our great-grandparents were a part, we are descended from a still smaller fraction of the entire generation. And so on for an unknown number of generations. When any person fails to become the parent of more than four children, the line of descent from that person is traveling the road toward extinction,—is on the way to join the dodo and the ichthyosaurus. It may not reach that destination, as even an only child may be the starting point for a large number of descendants, but the fact that all surviving lines come from successive generations of families averaging over six individuals to the family, should give us some food for thought.

It is frequently said that women are worn out, over-worked, exhausted, etc., by producing many children. The statement is not true in the sense in which it is made. The very women who make that claim are themselves descendants of long lines of female ancestors who produced large families, and the production of large families is their normal, natural and most healthful state. And what is more, statistical investigation into this matter shows that the women who produce the greatest number of children before they are forty-five are the ones who live the greatest number of years after forty-five, and the women who produce the least number of

children before that age are the ones who live the least number of years after it.*

In other words, the continuous and regular production of children during the child bearing age tends to prolong life after that age is past.

The current explanation of why women who have many children live longer than those who have few, is that longevity is some kind of spontaneous generation which arises out of nothing in some mysterious manner, and is correlated with fecundity which has no origin at all. Also, that longevity is inherited, but fecundity is not because it is characteristic of only a small part of the daughters of fecund women. That there is no correlation between fecundity and longevity is made evident by comparing rabbits with elephants, or by comparing any animals which differ much in fecundity or longevity. Before a person can deny the validity of such comparisons for this purpose, he must kill off the evolution theory and return to the Garden of Eden story.

The fact is that fecundity has nothing to do with the matter. Each normal woman has a physical capacity for the production of a child per year from the age of fifteen to the age of forty-five, and a fecundity far in excess of anything physically possible in child production. To measure fecundity by the actual number of children produced, and to say that a woman who produces many children is inherently more fertile than those who produce few or none, is to make the existence of a natural quality dependent upon subsequent circumstances. According to such a theory, a woman who has a sterile husband, or none at all, has no natural fecundity at all and lives a short life, but the woman who marries a man who refuses to wait until "day after tomorrow" has great inherent fecundity and lives a long life.

The real reason why women who have many children live longer than those who have few or none, is that the regular and continuous performance of a natural function builds up the powers which maintain life, while a failure to exercise such function permits those powers to decline. To understand this it is necessary to go off of the beaten track and consider what life is, and some of the things which we know or can prove will lengthen or shorten it.

When a person exerts himself by physical efforts, he does certain foot-pounds of work, and foot-pounds of work is something well known in physical science. It is properly called "energy," but is referred to as "power" when we wish to indicate energy as being expended, or capable of being expended. This energy which is expended by efforts comes out of the body of the person who exerts himself, and as we cannot get something out of nothing, the energy must be stored in the body of the person before he can do foot-pounds of work. If the efforts which a person makes are moderate, within the ordinary meaning of that term, then the foot-pounds of energy withdrawn by exertions are soon replaced by other foot-pounds of energy derived from food.

But it is known that a man by great efforts long continued may cause his own death as a result of nothing else than his own exertions. This means that death is caused by withdrawing from the system more than a certain amount of energy, and that in turn means that life itself is a form of energy. We identify electricity as being a form of energy, even though we do not know precisely what this form is. In the same way we can identify life as being a form of energy, even though we are unable to determine the essential nature of this form as distinguished from other forms.

But it is not the intention here to elaborate on the ways of identifying life as a form of energy. I have done that to a considerable extent in other contributions. It is sufficient for our present purpose to point out that energy within the body is the source of the foot-pounds of work that a person may perform, and that if more than a certain amount of this energy is withdrawn at one time, death results. The next thing to consider is how the quantity of energy within the system may be increased so that there will be a larger margin of safety between the normal condition and that point at which death occurs.

It is well known that a man builds up his physical strength by physical exercise. In other words, the very process by which a man withdraws energy from his system is the process by which he builds up his supply of energy to something greater than it was before. The condition under which this building process occurs is one in which the amount of energy withdrawn from the system, in some unit of time, as a day, week, or month, shall be a little less, but not much less, than the system can replenish in the same time from the food supply. The fact that powers are built up by exercising them is taken advantage of by athletes of all kinds in preparing for physical contests. But it is ordinarily believed, and frequently stated, that under any such process there soon comes a time at which no further exercise will develop the powers further. That this is an error may be shown by turning our attention to cases in which experiments have been carried further than with man, and ones in whtich the records have a scientific accuracy not found in the training of athletes.

For convenience we will begin with the trotter, taking first the case of the old time champion, Flora Temple:

HIGHEST SPEED OF FLORA TEMPLE. ONE MILE.

Seven years old	2:36
Eight years old	2:27
Eleven years old	2:24½
Fourteen years old	2:19¾

Flora Temple was trained and raced every year from the age of seven to the age of fourteen, and she continued to gain in trotting power as she grew older. But as far as *speed* is concerned, the gain was not uniform, as is evident from her trotting records. After she made her record of 2:27 as an eight-year-old, two yearse of continuous training showed no improvement, but the third year did. After she made her record of 2:24½ as an eleven-year-old, two more years of training showed no improvement, but the third year did. The statement that the development of powers by exercising them is strictly limited, is due to inaccurate information arising from the failure to reconize the fact that there are sticking points in development which it is sometimes difficult to overcome.

By exercising the powers she had, Flora Temple acquired powers she did not have before, and powers which never existed in any ancestor. By her own efforts she acquired powers beyond her inheritance, because no previous horse was capable of trotting so fast as she trotted, and she could not inherit from

* One investigation on this point was made by J. McKeen Cattell, and is recorded in the *Scientific Monthly* for October, 1917. Another was made by Alexander Graham Bell, and was published in the *Geographic Magazine* for June, 1919.

ancestors a power which the ancestors did not have. As an eleven-year-old she trotted faster than any previous horse had trotted, and as a fourteen-year-old she broke the world's record four times in succession. Whenever a horse becomes a champion trotter, the fact that he does become a champion is of itself positive evidence that he has greater trotting power than he inherited—greater power than existed in any ancestor. During the past seventy-five years there have been more than twenty such horses to become champions, and no matter how good a horse may be, he can become a champion only as the result of many years of strenuous efforts. He must acquire by his own efforts that which he did not have, and that which never before existed.

Kittie Smith lost both arms at the age of ten, and then trained her toes. On June 17, 1905, using her toes, she wrote a letter to Eugene Davenport, of Urbana, Ill., and signed it before a notary. She also trained her toes so that she could use them to thread a needle and do sewing, make drawings, etc. By exercising the powers she had, Kittie acquired powers in her toes beyond anything she inherited, and beyond anything which ever existed in any ancestor.

If poison gets into the system in any way, the system fights that poison, that is, the system uses its powers to overcome the poison. If the dose is less than lethal proportions, the poison is overcome, and in overcoming it the system builds up its powers of resisting that kind of poison so that it is later able to resist the effects of a larger dose. By beginning with small doses of snake poison, and gradually increasing them, pigeons, hens and rabbits have had their powers of resistance built up so that they were able to survive doses which were from two to four times the original lethal dose. In this process, these animals, by exercising the powers they had, acquired powers they did not have before, and powers which never existed in any ancestor.

Davenport and Neal raised two lots of sentors,—one in pure water and the other in a very weak solution of corrosive sublimate. After two days both lots were put into a killing solution which was twenty times as strong as the weak solution. Those raised in pure water died in 83 seconds, while those raised in the weak solution lived for 304 seconds, or nearly four times as long. No deaths occurred in the weak solution, but the animals there had to exert themselves to resist the action of corrosive sublimate, and in doing this they acquired powers they did not have before, and powers which never existed in any ancestor.

The facts relative to the development of powers by exercising them would fill a large book, but the examples given will serve our purpose. When the powers developed by exercise exceed any possible inheritance, there can be no doubt about the thing being an acquirement in the strictest meaning of that term. Having made this point clear, we can return to our women with large families.

When a women produces a child she exercises certain bodily organs which are not exercised by women who produce no children. Exercising those organs builds up power in them, as evidenced by the fact that a woman who has had several children accomplishes the feat of producing others with comparative ease. "Building up power" is simply another way of saying that the energy within the system is increased, and increasing the energy is providing a greater margin of safety so that death is pushed into a more remote future.

And a woman who produces many children is kept busy caring for them. She has to be active, both physically and mentally, a good many hours each day, year after year for many years. While this activity approaches, it does not usually reach, the limit of her capabilities, and hence it is the kind of activity which results in developing the greatest store of energy in the system. While we do not have any scientific measurements applied directly to women and which show that such continued activity by them continues to develop their powers, we do have evidence that women who thus exert themselves live longer than those whose efforts are less. We know that a store of energy within the system is necessary to continued life, and we know from a variety of facts in both animals and plants that the store of energy within the system is augmented by the exercise of that which already exists. And, furthermore, we know that the powers of organs are not developed in any other way than by exercising those which previously exist. One branch of the evidence bearing on this last is found in the fact that when the amount of exercise falls below a certain minimum amount, there is invariably a decline in powers.

The reason why women who have many children live longer than other women is because they acquire extra length of life by their own exertions,—they build an addition onto their inheritance. And what they build onto their inheritance they pass on by heredity to the children produced after the building has been done. On this point I will give the results of my own investigations.

I selected cases of healthy parents who produced many children living to maturity. Taking a case of that kind, when a woman produces her first child she exercises a long series of bodily organs, and that exercise builds up the powers of those organs. When she has her second child she again exercises those organs and further builds up their powers. And so on time after time. Furthermore, she is necessarily active in caring for those children, and this activity continues year after year and builds up her general mental and physical powers. That this kind of effort and exercise is natural and healthful will be evident from the fact it is what characterized all of her female ancestors in all ages of the past. And the father who feeds and clothes such a family must necessarily work hard and build up his powers.

I took about two hundred families of this kind and combined them into one composite family of 1,105 children and found that the later children inherited the power development acquired by the parents in producing the earlier ones, and as a consequence the later ones lived longer than the earlier ones. Put into figures, I found that as long as parents retained their health, each four years added to the age of the parents when the children were born, added one year to the life of the children. For example, if children born when the parents are twenty-four live to the average age of sixty, then other children born to the same parents when at the age of forty-four should live to an average age of sixty-five. The actual table is as follows:

EXPECTANCY OF LIFE AT AGE OF 25 FOR 1,105 BROTHERS AND SISTERS OF COMPOSITE FAMILY.

Ages of Fathers at Births of Children	Number of Children	Average Age of Children at Death
Under 25	83	62.63 years
25 to 29	233	65.20 years
30 to 34	266	65.28 years
35 to 39	199	65.41 years
40 to 44	165	68.02 years
45 to 49	88	66.28 years
50 and over	71	70.27 years
	1105	65.89 years

Does some one think that adding to the longevity of children by causing the parents to develop their own powers by exercise before producing the children is a freak idea which has no foundation in fact? We can determine that matter positively by going to the records of the trotting horse.

We have a record of 39 stallions of the trotting breed who lived to be 30 or more years of age. These horses were all born between the years of 1804 and 1887. During that period of horse history, not one stallion in a hundred was trained and raced sufficiently to enable him to obtain a standard record of 2:30. This should be evident from the fact that no stallion ever trotted in standard time before 1858, and that it was not common to train and race stallions until after 1890. On the mere matter of probabilities, not one of these 39 stallions should be a horse with a race record, or the son of such a horse. As a matter of fact, 18 of them were horses with race records, and 11 of them were sons of horses with race records.

There was one stallion of that period who was trained and raced more than any other stallion in horse history. He was kept on the track until he was seventeen years old because breeders did not consider him of any value in breeding ranks, and he had to earn his oats in some way. As only about one horse in a thousand of those living between 1804 and 1887 became the sire of a son living to the age of 30, the chances are very slim that any one of these 39 horses should be the son of this horse so long on the race track. As a matter of fact, six of those 39 horses were sons, and three were grandsons of that one horse, whose name was George Wilkes.

525 Monadnock Block.

EXPERT NASAL SURGERY.

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The rhinologist to-day is essentially a surgeon. Sprays and local medication are important and he employs them to good advantage. But his right to call himself a specialist depends greatly on his surgical skill. This is the outcome of a gradual metamorphosis. When the specialty was being developed, the men who worked in this line were not surgeons. They knew anatomy, but no surgery, and they called in general surgeons to do their work. These surgeons knew their surgery, but did not know the local anatomy. The result?—crude, often destructive surgery. Times have changed, however; the young rhinologist has been trained in general surgery and therefore applies these principles to his special work. We therefore see better work being done every day.

In order to do expert work the rhinological surgeon of to-day must know his anatomy, physiology and pathology. It is only by a thorough knowledge of the tissues within the nose that he is able to conserve these tissues. Expert nasal surgery means conservative surgery; in other words the surgeon attempts to do only such work as will do permanent good without creating permanent harm.

Plastic surgery of the nose has advanced considerably. It has been taken out of the hands of the "beauty specialist" and now is being done conservatively and expertly. The saddle-backed nose can be properly shaped by paraffin injections and transplantation of bone. The hump-backed nose is made smaller by proper intranasal chiselling. The nostrils can be made larger by a plastic operation on the vestibule. Crooked noses can easily be straightened by intranasal manipulations.

The surgery of the turbinates has become more precise. We appreciate the importance of the nasal mucosa and therefore attempt to conserve this tissue as much as possible. Total excision of the inferior turbinate resulted in atrophic rhinitis. So to-day the object of the rhinological surgeon is to remove whatever tissue is necessary to relieve obstruction, but not enough to cause "dry catarrh." Hypertrophied posterior tips of inferior turbinates are readily removed with the snare. The most conservative operation on the inferior turbinates is the submucous resection of the bone. The tissue on the under surface is removed with the bone. The remaining tissue is left folded on itself to act as a new and smaller turbinate.

By far the most expert nasal surgery is performed on the septum. The submucous resection of this bone is probably the conservative surgical operation that we know of to-day. The operation is performed through a small incision along the muco-cutaneous fold.

The most important work that the rhinological surgeon does to-day is on the accessory sinuses. Here is a field that until a decade ago was almost totally unexplored. To-day, transillumination and the X-ray have made the diagnosis of these parts a comparatively simple matter. The antrum is readily opened and drained below the inferior turbinate. Removal of a small portion of the anterior portion of the middle turbinate often drains the frontal sinus. Radical operation on the frontal sinus is frequently resorted to. However, the most important advance is in the surgical treatment of the ethmoid cells and sphenoid sinuses. Ballenger and Mosher have taught how to remove ethmoidal tissue with little danger: the sphenoid sinus is readily recognized and opened after removal of the middle turbinate.

The newer methods of diagnosis and the improvement in illumination have helped considerably in developing expert nasal surgery. The specialty has not reached its surgical limitations yet. What the future will bring forth, no one knows. One may predict that as more men trained in general surgery enter this field, so much more finely and accurately will this work be performed.

Leucoplakia.

This condition, whether affecting the mouth or vulva, is almost always much benefited by radium, and the pruritus so commonly associated with it is greatly relieved. There is, however, a strong tendency to recurrence.—(*B. M. J.*)

A PRACTICAL TECHNIC FOR THE TREATMENT OF GONORRHEAL PROSTATITIS.

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Somewhat like the tonsillar glands, in its proneness to become infected, the prostate, by its location, is very much more difficult to reach in the process of efficient local treatment.

Not infrequently we observe severe cases of gonorrheal infection of the prostate which are the direct result of prematurely inserting the soft catheter, or, maybe the steel sound, into an infected urethra. But even when the gland is very much enlarged and exceedingly painful to the touch, the result of engorgement, the gentle massage, first instituted, I think, by Dr. Eugene Fuller, thoroughly but carefully carried out, together with warm irrigation solutions of silver nitrate, of varying strengths, will be found very effective, provided the patience of the operator, as well as that of the victim will hold out sufficiently long.

There is just now being terminated—the treatment of an exceedingly tedious case—that is practically well, after just four months' treatment.

The patient—T. A. P.—a vigorous man, forty years of age, has given a clear history of having first suffered from a Neisserian infection nine years ago. He was treated by a great many physicians. As this patient positively denied having gotten a secondary infection, it would seem more proper to class his prostatic condition as that of a stubborn, long standing complication of gonorrhea. The patient maintained that many and varied remedies had been tried on him.

Identically the same method of treatment was pursued as that used in all such cases—viz., following a twice a week thorough prostatic massage; the soft catheter is pushed to just beyond the vesical sphincter and the warm silver solution, of about one pint, is allowed to pass into the bladder—and held for five or ten minutes.

It may be readily conceded that there is absolutely nothing new about the latter procedure, however, it would seem that one of the very important reasons why the same may not prove more generally efficient—is simply because the patient's confidence is not retained long enough to gain the result sought for.

Then, too, in a great many such cases, the doctor loses patience, or, possibly he does not like to treat such cases. At all events, to judge from the many histories that one hears, there is the ringing of so many changes, with regard to the different agents that suggest themselves that it is hardly possible to reasonably expect any sort of favorable result. The old routine is kept up, while a great many prematurely impotent patients carrying around, from one physician to another, the very stubborn catarrhal complications of an old prostatic infection.

The patient above referred to, contended that his erectile function had been practically dead for almost one year, and he had, on several occasions, gotten desperate and resorted to liquor. But he was made thoroughly abstemious and, within the past two months—the power of erection normally returned.

The motive for reporting the above case, and referring to the technic of treatment, is from the thought of the many ancient prostatic complications that go the rounds and frequently result in premature impotency.

The Diagnostic Laboratory

Conducted by CHESTER T. STONE, M. D.,
Brooklyn, N. Y.

Colon Bacillus Infections.

An attempt will be made in this article to answer numerous requests made to the Query Department for information on the subject of colon bacillus infections.

No anti-aircraft outfit, with its powerful searchlight apparatus, looks for Zeppelins with a candle; yet daily, the profession attempts to search out the mysteries of cause and effect with means quite as primitive. The cardinal sins of practice, as in cards, are not only the trumping of your partner's ace, but sending a boy to do a man's work. A patient describes a chain of symptoms—a few questions are asked—a cursory examination made—a prescription given—the ready palm—the request to call again in a few days—and the little fellow whose normal habitat is the colon winks the other eye.

One of the most common urological afflictions is colon infection, but like other common conditions it is often overlooked. We are prone to search for the unusual and ignore that which stares us in the face. The safest place to hide money is in plain view on the shelf.

All urological cases should have most painstaking urinalysis, not of a single specimen but of a series, some casual, and especially twenty-four hour specimens. Observation has shown a patient may void several practically sterile specimens and then pass one rich in bacteria. Unless all cases are carefully checked, the causative factor may not be discovered.

Having wisely determined upon the analysis of a series, another source of error may be avoided by insisting that specimens shall be examined by competent workers of known reputation rather than by the dollar men.

The writer split into four parts a specimen of obviously infected urine of colon origin and sent all four with different names to the same laboratory. The reports all differed. Had treatment been prescribed for all the pathological findings, the patient might well have made terms with some kind hearted funeral director rather than submit to a more dreaded ordeal.

Whether due to careless microscopical observation, hasty chemical analysis or the "sink test," the reports urged the necessity of employing workmen of the highest character or having such tests made under your own personal supervision, and preferably in your own Urological Laboratory.*

Having found a reliable place for laboratory diagnosis, the causative organism having been located, next comes the study of the patient. The affected area must be searched out, the extent of the involvement determined and the best method of elimination chosen.

My series of cases show the bladder and urethra to be the most common seat of infectious organisms; next comes the right kidney, then both kidneys, then the left kidney in both sexes, and in women the vagina. In many cases the extent of involvement and the infected area can be determined promptly, but often protracted study and several cystoscopies are necessary.

Constipation, the source of so many human ills, is the nidus of colon infections. "Fear God and keep

your bowels open," said Oliver Cromwell. It is hard to convince the average patient of constipation. If he has one passage daily, he does not dream his so-called thorough movements are merely a passing of small quantities of waste matter through the center of a poisonous mass, caking the intestinal walls, and that fermentation is there going on and toxins being absorbed.

There is, of course, great variation in individuals. One may suffer from intense infection with a so-called regular, daily movement, while others without passing even the smallest amount of feces for a period of two weeks seem to have but slight infection, if any.

Infection caused by constipation may enter the urinary system by three routes—either through the lymphatics of the intestine (the generally accepted theory)—through the intestinal blood vessels by absorption and thence through the blood stream to the kidneys and bladder or by approximate contact of the gut with these organs.

Infection in women often enters through the urethra. The organisms are carried to the meatus and vagina by the improper method of cleansing the anus after stool, the cleansing medium being drawn toward the labia rather than the reverse. With the organism thus located on the membranes of the meatus or vagina copulation or masturbation following, colon bacillus infection in the bladder is sure to come.

Another contributing cause of bladder infection with tendency toward kidney infection is the too ready catherter of the mid-wife, to whom cleanliness is almost a total stranger and whose prevailing passion is to discover an opening at any price, be it the meatus or cervical os, or even the anus. Nurses and physicians themselves are at times proper objects of adverse criticism.

It may not be necessary in catheterization, cystoscoping or instrumentation to observe absolute surgical sterilization; surgical cleanliness, however, is a positive requirement.

Of infection through surgery most obvious is hemorrhoidectomy. Enforced constipation follows the operation and the raw surfaces become fertile soil for toxic bacilli which find ready access to the blood stream and lymphatics. Other operations, such as prostatectomy, cystotomy and attendant operations, removal of tumors and vesical calculii, may result in infection unless the utmost surgical cleanliness is observed. Surgery must always require simultaneous control in many subconscious mental states—and to employ the hand lately used in an area where the infectious organism is found to one uninfected is not an unlikely occurrence.

Thorough search for the cause must be the slogan. Many remote foci when located and removed will cause the infection to subside and eventually clear. Diseased teeth, infected gums, diseased sinuses, acute and chronic lung disorders, diseased appendix, gall bladder, liver, pancreas or intestines, neglected ureteral and vesical calculi, kinking of the ureters and prolapsed kindneys may give rise to congestion and finally infection. The working area of a urologist is everything under the skin and then the skin.

In pregnancy a urologic examination is seldom amiss by reason of the fact that the kidneys play so important a part during this period Furthermore, these organs subjected to overtaxation, due to decreased activity of the stomach and intestines and diminished eliminating power of the skin, throws more than the normal amount of toxic material into the kidneys. Cystoscopy will indicate infection, due to colon bacillus, in pregnant women in from 80 to 90 per cent. of the cases.

The symptoms of colon infection bacillus also vary with the individual. They may consist of one or all of the following: hematuria rarely; frequency in nearly all cases; dysuria, headaches, constipation, frequently; lassitude, temperature, backache and pain in the region of the kidneys and bladder in nearly every case; occasionally pain in certain areas which are obviously referred pains.

Following the above complaints, cystoscopy, which should be preceded by thorough cleansing of the bladder with silver salts and later silver itself, will as a rule show intense congestion of the bladder, mucosa and sphincter, trigonitis, edema of the ureteral orifices and residual urine. Ureteral catherization is likely to show retention of pus, urine and bacteria in the renal pelvis. The kidney function will usually be found impaired.

In treatment, severe cases should be placed in bed, given active catharsis and high colonic irrigation with an apparatus similar to the Murphy drip. Removal of the infection will be hastened by the frequent administration of fluids, with aloes and mastic pills and mineral oils at proper intervals in such dosage as the individual case seems to require. A carefully regulated diet is of great importance, where the case permits, together with exercise and regular habits of stool.

Obviously, all efforts toward elimination should start with the bladder. If the kidneys are not involved, catheterization of the ureters; however carefully this difficult work may be done, may carry infection to these organs. The kidneys and pelves should be treated by washing only when the bladder fails to respond promptly.

Methylene blue capsules, grains 1, t. i. d. p. c. will be found most serviceable for internal medication. This treatment may well be alternated with santol oil or some of its modifications, min. 10, t. i. d. p. c. Urotropia does not seem to prove effective.

In the biggest percentage of cases, vaccines, which are admittedly par excellence in numerous conditions, are of no avail in this condition. In patients convalescing from this trouble they act as a valuable adjunct to other treatment, but per se they are useless.

The dull and trite never riot unchallenged in the work of one attuned to the tremendous hazard of discovering the cause of human ills and their remedies.

His is the life!

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Utopia?

The war ought to teach us that a new system of democratic medical education is in order—for the profession at large, we mean.

Perhaps we ought not to say a "new system," for there has never been any system.

The active medical profession ought to be conceived of as occupying a battle front. Its members are our first-line trench fighters. Frequently they are too tired at night to travel miles through their lines in order to acquire new knowledge—and leaves of absence are hard to get from their clientele.

Supplies of new knowledge ought to be sent to the battle line. The licensed practitioner should be able to go a few blocks any day to his hospital "headquarters" and hear the regular visiting men, as well as reciprocating or exchange staffs, expound new knowledge, and see them apply old and new methods. Time spent furbishing up old knowledge might find practical application on the morrow and save a life or two. Every district hospital headquarters should hum with scientific life.

Rural districts should be served by highly mobile units, operating from municipal centers.

Hospitals are not now being educationally utilized as they should be, so far as the general profession is concerned.

Thus we should have the idea back of a league of nations applied to the hospitals and to the profession. The hospitals would stand for the governments and the profession for the peoples of the nations. As such a league is intended to prevent war, so the new educational system would be designed to prevent disease and defeat the pale reaper more effectively, by raising the general morale of the profession.

This is the only conceivable way by which the hemic component of the profession can be improved. It would be a kind of transfusion process.

We believe that those on the battle front are hungry for something like this. Their present scientific diet is devoid of vitamins, hence their malnutrition.

Hospitals don't mean anything to most physicians. This is wrong; they ought to mean much more than their clubs and but little less than their homes (we don't say churches, for we are doubtful on this point).

But now for a sad anti-climax. We confess that there would be something lacking in our scheme sufficient probably to kill it unless all licensed and reputable practitioners were permitted to control their own patients at the district hospital headquarters. And nothing else, by the way, will ever make group collaboration perfectly practicable.

It is not the medical society, but the hospital, which should see medical men in closest communion and most beneficent activity. There should be found the shrine of Æsculapius.

Between the doctor's dugout on the fighting front and the nearest base hospital lines of easy communication should be developed.

In Our Hearts, We Know This To Be Sound Doctrine.

"As for whiskey, its good effect is now well understood and it has been used with some very satisfactory results, even in this epidemic. It is not, as we used to think, a stimulant, but on the contrary, it is narcotic and perhaps slightly depressant, but it is its narcotic effect that makes it valuable. We have heard so much about the fatality of pneumonia in our time that most people, after contracting the disease and realizing it, are very seriously scared. As a rule they are thoroughly conscious and they watch themselves breathe some forty times a minute and note the solicitous looks of friends and are likely to become much disturbed. This may gravely interfere with their resistive vitality and power to throw off the disease and something must be done to relieve their mental anxiety and, above all, keep them from interfering with their heart action by depression. A certain amount of whiskey will do this easier and probably better, and with less risk, than almost anything else, so that it becomes easy to understand the popularity of whiskey in the nineteenth century epidemics" (Editorial *New York Medical Journal*, November 2, 1918).

After we get over our scare and find that we are not deprived of this valuable drug at the bedside we shall employ it for its anociative effects as of yore; and make honest reports upon it.

The fact that we can still prescribe it means nothing creditable to us. If it had been taken out of our hands altogether we would have said, "Yes, it is wholly worthless; take it away."

Would we not do exactly the same thing about the opiates, if terrorized by political Prussians?

"A Plague o' Both Your Houses."

The professional camp presents a curious spectacle. On the one hand we have the conservative rank and file lined up against compulsory health insurance, while on the other hand stand a few radicals who are ardent advocates of this form of "poor relief."

Of course, compulsory health insurance is a mere palliative as regards the ills of the workers. Opposition to it implies logically a friendly attitude toward policies making for genuine industrial justice. But genuine industrial justice would require a revolutionary spirit in its promoters, and radical changes like the abolishment of the wage system, the very things which shock our conservatives most. The paradoxical state of affairs is completed by the so-called radicals in question, for they, while professing revolutionary ideas, are strong for the health insurance sop to labor. Verily is consistency a jewel!

What sincerity can there be in either camp? Who is the shallower, Montague or Capulet?

Some of our radicals are nothing but sentimentalists, like the vociferous advocates of birth control who shed oceans of tears bewailing the woes of the mother of three or four children instead of helping to inaugurate a social system which would make real maternity feasible. The radical advocating compulsory health insurance is a sentimentalist after the same pattern.

As for the conservatives, they are worse than sentimentalists. No parliamentary term covers their case.

Out of Darkness Into Light.

Grim darkness broods above the stricken earth,
Still as old terror swooping from the sky;
The nets of death are wrenched apart and lie
Across the meadows, barbed with savage mirth.
More dread than war, peace stares upon her dearth
With the dead eyes of her insanity.
This hungry peace, that does not live nor die,
Smiling at the vain victory of birth.

There is no scent of dawn, no sea-wind blowing
To sweep away this ancient evil grief.
The world is sick: simple desire is going;
Power lames wisdom; love is but a thief.
Nothing is here worth suffering and knowing
But the sharp moment, profitless and brief.

Babette Deutsch, in the *Dial.*

It is indeed a deplorable world which the physician faces in this year of grace. From the medical point of view things are nothing short of frightful. Worse than the old prostitution, for just one thing, is the present starvation of children. We don't have to go to the war-stricken zones to cite the proof. Our our Children's Bureau of the Department of Labor tells us that from 3,000,000 to 6,000,000 American children are not getting enough to eat because their parents are unable on their present income to buy sufficient food. In New York City one-fifth of the school-children are suffering from partial starvation.

The conditions in the war zones are so bad that realization of them, in the words of Mr. Vanderlip, would preclude sleep.

The importance of medical economics looms larger now than ever before. The nutrition problem is inextricably interwoven with that of industrial democracy. The conscientious physician cannot blink the implications. He must interest himself in economics and proposed roads to freedom equally with pure and applied medical science. Radical social reforms as well as therapeutics must receive his sincere consideration and enlist his direct action. Fundamental reconstruction of the state must proceed apace with reconstruction in the clinic, and the physician must assist intensively in both processes.

The Female Pedagogue Syndrome.

What might be termed a syndrome has doubtless been noted in certain women engaged in occupations involving much nervous wear and tear, lack of exercise, an atmosphere not markedly hygienic, and *celibacy*. The class which pre-eminently presents the complex of symptoms and signs which we have in mind is found in some of the women of the teaching profession.

The female pedagogue, after say ten years of school life, is too often a pathological museum. She in anemic, her complexion is of an earthy hue, she is neurasthenic, caffein-saturated, "rheumatic" and neuritic. She is abnormally susceptible to colds, to fatigue, and to cardiac and blood-pressure vagaries. In the type which we are describing foci of infection play no part as a rule. These patients are "on the job" much of the time, and do not seem to be short-lived.

We conceive that much of this pathology signifies illness directly consequent upon the thwarting of the sex impulse. The individual is enabled to dispense with the sexual life by becoming a semi-wreck. Her physical incapacity and impotence make a sexless life feasible. Thus her chronic ill health is a defensive mechanism. The ultimate product of the unnatural adjustment is a neuter whom society accepts as a proper trainer of the young.

There is something superlatively rotten about a social system which deliberately sees to it that a class is dedicated in this manner to a special community function. What is the moral difference between such a dispensation and the Oriental scheme of a eunuch class? Are not our professions of respect for this type of teacher closely akin to the Oriental sentiment which ascribes a peculiar sacredness to the eunuch class?

And what therapy availeth in these circumstances? What practitioner counts none of these patients among his clientele, and what practitioner is there who has not realized his inability to do therapeutic justice to them, and who has not been puzzled by the type?

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

An Index by Which to Judge of the Progress That Prison Sanitation Has Made.

"For more than fifty years (1773-1827) Connecticut had an underground prison in an old mining pit on the hills near Symsbury, which equalled in horrors all that was ever related of European prisons. Here the prisoners were crowded together at night, their feet fastened to heavy bars of iron, and chains about their necks attached to beams above. These caves reeked with filth, causing incessant contagious fevers. The inmates were self-educators in crime. Their midnight revels were said to have resembled often the howlings of a pandemonium, banishing sleep and forbidding all repose. . . . Men, women, boys, idiots, lunatics, drunkards, innocent and guilty, were mingled pellmell together."—E. C. Wines.

Debt Medicine Owes to Arabian Physician.

From the Asia Magazine.

Then there is the Kitab-al-Mansuri of Ali Razi, the most eminent of the Arabian physicians, the Rhazes of European writers, of whom it is said that when in his old age he suffered from cataract and was asked to have his blindness removed by an operation, he replied:

"I have seen so much of the world that I am wearied of it."

Of whom also it is said that when called upon to select a site for a hospital in Bagdad, he caused pieces of meat to be suspended in various localities, and chose that one in which, after a given time, the meat showed least putrefaction, thus anticipating the knowledge of microbial infection. To him it is said that we owe the oldest account extant of smallpox and measles.

The Bad Habits of Some Cats.

Hirschfelder's work on "Diseases of the Heart and Aorta" has the following interesting paragraph (p. 711; 1918 edition):

"Lee's observations have been repeated by Bruce, Miller and Hooker, who found that smoking increases the maximal, minimal and pulse-pressures in man, though later these return to normal. The cardiac output, therefore, seems to be increased at first, as Lee has found in cats. Bruce, Miller and Hooker also found that the volume of the hand always decreased during smoking (vasoconstriction), whereas Lee found that the volume of the cat's intestine also decreased."

The "Great White Train" in Siberia.

The Allied Anti-typhus Train which has been operating in Siberia under American Red Cross direction for the last six months, after covering thousands of miles and caring for thousands of victims of the disease, is now at Perm, where the doctors and nurses are combatting a recent outbreak of typhus among the soldiers and civilians of that district. Captain Rudolph Bukeley, a member of Honolulu chapter of the Red Cross, is the director of the expedition.

The reputation of the train as an effective weapon in fighting typhus has spread far and wide. Built by the American Red Cross for the Allies, it was originally intended to be used first in the maritime provinces of Siberia. Then came the tremendous epidemics of typhus out west in the heart of winter—epidemics that ran the number of hospital cases up into the tens of thousands and the unreported cases into the twenties of thousands. From military camp and concentration point; from soldier and prison barracks; from hospitals and orphanages and refugee colonies; from railroad trains crowded with homeless people and stations even more crowded, came reports of the spread of the "spotted fever."

So the Great White Train went west,—long cars for bathing men, women and children unwashed for months; cars for cutting the hair and sterilizing the clothes; cars laden with medicaments and clothing, and began its work of aid and mercy—and prevention of even worse epidemics.

There is ample testimony as to the good work accomplished by the expedition, some of it from business-like officials who were, in the beginning, if not skeptical, at least unconvinced that the train would be a success. When typhus began to die down with the coming of summer, and the train was taken to Omsk with its supplies all distributed, the question arose as to its disposition. General Knox, head of the British Military Mission, who has seen the train and knows of its operations, telegraphed to Vladivostok. The train has "done grand work," he wired, "it must not be scrapped."

The train left Vladivostok on February 2, and since then has been continuously engaged in its relief work. The director was Captain F. A. Dallyn of the Canadian Expedition Force, a sanitarian of long experience. On April 2, Dallyn went down with typhus fever, from the bite of a louse received while he was cutting the hair of a patient. His escape from death was narrow, but Red Cross doctors and nurses pulled him through and he is now at Vladivostok, convalescent.

With Captain Bukeley in charge the train went steadily on with its work though in a few days it was apparent that it had an epidemic of its own. The typhus broke out among the attendants. One after another was taken ill and sent to Petropavlovsk, a short distance away, where the American Red Cross maintains a big typhus hospital which has done notable work.

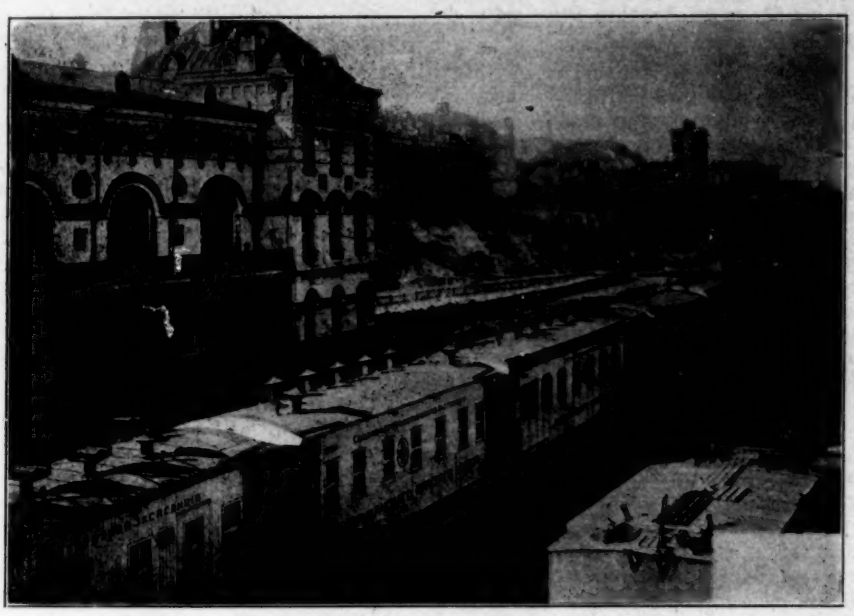
Bathing hundreds of men daily, sterilizing their clothing, giving out medicines and garments, the train visited city after city. Its trail of mercy reached from Vladivostok on the east to Chelyabinsk on the west, 4,125 miles.

Fourteen of its personnel of 31 had been stricken with typhus. Eight attendants out of the original eight fell victims. A Czech guard, a car porter, a male nursing attendant, and an assistant were taken down. Typhus even went into the crew of firemen looking after the water-heating apparatus. But the train went on. Men were employed to take the places of those sent to hospitals. At last reports all of the patients were recovering. Diagnosis of the disease at an early stage, prompt dispatch to the hospital, and careful nursing pulled them through. Their recovery shows that typhus, fought with modern weapons and plenty of them, is no invincible enemy. It can be defeated in Siberia, though the great epidemic of 1919 seemed overwhelming.

About 20,000 men have been handled by the personnel in the six months the trains has been out. These men have been bathed, their heads clipped, their clothes disinfected, and in many cases they have received underwear and medical treatment.

Side by side with the purely physical aspect of the anti-typhus expedition that of train operation went the work of education. In every city or town visited the train officers arranged conferences with the leading officials, military and civilian, of the district who were in charge of sanitary, medical or surgical work, and placed the Red Cross facilities at their disposal. Where danger to Allied troops was involved by reason of typhus which might get into the Allied camps, it was the Allies, through this train, who placed their unique weapon at the disposal of Russian Communities.

Arriving at a Russian town believed to be typhus-ridden there were few indeed free of the disease—a meeting of the various local officials was arranged and the typhus train officers secured all possible information concerning health conditions of the district. Simultaneously physicians aboard the train were sent out to make separate examination as to the needs of the several hospitals. Expert plumbers and engineers from the train also were sent out, to examine bath-houses and the disinfecting apparatuses used by the Russians. In every city and town there was compiled authentic information on which the Red Cross can base future



operations against typhus. The educational results of the anti-typhus expedition were far-reaching. The very appearance of the great white train in railroad yards and at stations where thousands of people congregated proclaimed to the Russians something new, interesting and helpful, was afoot. Military and civil officials were deeply interested in the train and its operations. The danger to Siberia of the overcrowding of military concentration areas, with inadequate sanitary arrangements, was determined beyond question by the investigations of the anti-typhus campaigners. Unquestionably one of the most potent reasons for the rapid spread of typhus during the winter of 1918-19 was that troops suffering from the disease came back into "clean" areas and infected their vicinity.

One of the principal points made by the Red Cross men after they had investigated conditions in the west was that to control typhus it is necessary to have a thorough-going organization in western Siberia which shall examine all trains, bathe and disinfect troops and groups of prisoners frequently, and absolutely forbid infected bodies of men from going into clean areas.

During the summer there will probably be comparatively little typhus, but nexr winter they look for a recurrence of the disease. It is altogether improbable that the acute overcrowding of stations, trains and all public buildings, due to the hordes of refugees, will be done away with before next winter. They are living now largely in the open but as the chill of the Artic comes down on the first winds of winter, they will, of necessity, leave their huts and shacks which abound in the outskirts of all Siberian cities, and will once more hunt for warmer quarters.

Then, too, there is no assurance that the war of Omsk government troops against Bolsheviks will be over by the winted of 1919. There may be still hundreds of thousands of men on the western front, and during the winter there is no way of avoiding the crowded barracks and troop trains.

So far as the troops are concerned, however, there will be better facilities and equipment next winter to care for them. One of the gravest shortages has been the lack of underclothes. Soldiers with but a single suit of underclothes each have small chance to keep themselves clean and free from the cootie. And there were tens of thousands of such soldiers on the western front during the winter and spring. There were tens of thousands with no change of uniform. Disinfection equipment was terribly meager. Every condition made for spread of the disease.

Though the Russian Army will probably be better equipped to fight typhus, the civilian population is well nigh helpless in the face of economic famine of Siberia. There has been a comparatively negligible supply of new clothing sent into this huge country. The American Red Cross sends westward trainload after trainload of relief goods—suiting, underclothing, sweaters, socks, etc.—but the sum is inadequate in the face of the staggering necessities. Yet every garment counts, every sweater knit by some devoted woman or girl in far-off America may save a life this winter.

(*Concluded from page 260.*)

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